

NDD

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Review

Adding a CD-ROM

Two solutions compared

Lightwave PAL

An in-depth look

Piracy

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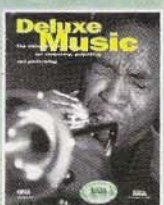
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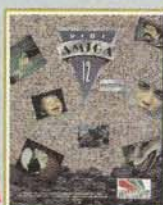
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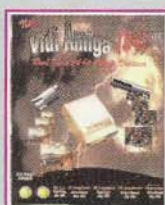
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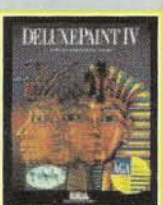
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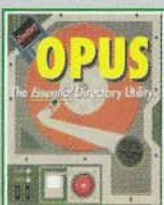
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Features



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We compare two Amiga CD-ROM solutions, including the NEC 3X triple speed drive.

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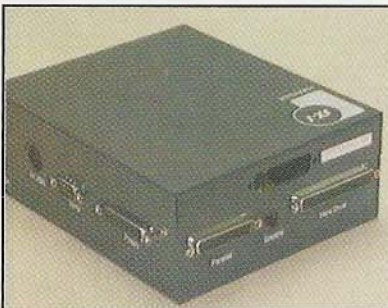
How it works. Illegitimate copying is alive and well, though nobody wants to talk about it.

25 PAL Lightwave

Newtek's monster 3D rendering package is now available sans Toaster - read all about it.



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Supra's 28MHz 68000 accelerator gives you power without the price.

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All the news from the recent Australian Amiga Developers Association conference.

68 Primera Printer Review

Photo realistic colour printing.



Cover created by Jarrod Pudsey
Image: 1920 x 2560 24bit
Program: Lightwave
Render Time: apporx. 3hrs
Machine: A4000/'040/40Mhz

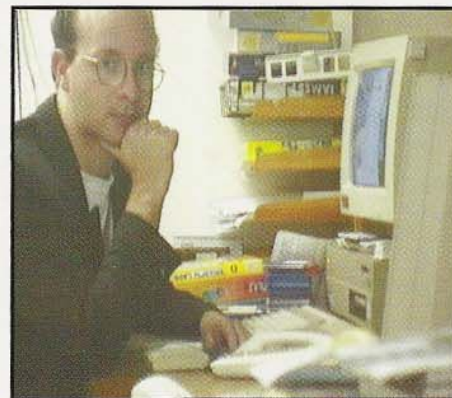
AMIGA Review

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U.K. Boss Speaks



David Pleasance is joint managing director of Commodore U.K., the company who are now in the number one favourite position to be the new Amiga International. In recent weeks, Mr Pleasance has conducted numerous interviews. Here's a quick look at some of the more important statements:

"[If we win] ...there will be a new, UK-based team manufacturing and selling the Amiga. We'll be independent, and we'll be benefiting from investment from some of the UK's biggest financial institutions.

"...we've managed to satisfy the liquidators of Commodore International that we've got financial support. And now they've got to make up their minds whether to recommend our bid or someone else's. But we're pretty sure they'll go with us.

"...we'll be manufacturing in the UK which means we can press the button immediately we know we've won. And because we haven't got to ship product halfway round the world anymore, we are confident in getting products to the shops in time for Christmas.

(Well, Dave, actually you DO have to ship product half way around the world, otherwise Australia won't get any!)

"Software publishers... have been amazingly supportive of the [management buy out] and are even more supportive of the Amiga 1200 and CD32. They know it's a big business. And they'll be launching plenty of new titles in the run up to Christmas. I expect the first an-

nouncements to be made at the ECTS trade show in early September.

"[We're] 100 per cent committed to the Amiga 4000. It's far and away the best machine for specialist users and knocks spots off the competition as a multimedia platform.

"Lew Eggebrecht - the guy who's been responsible for most of the Amiga's recent technological strides - has reconfirmed that a team of experienced US Amiga engineers have some wonderful new products at various stages of development. You will not be disappointed.

"Even in the extremely unlikely event that we don't pull it off and Commodore ceases to exist, the Amiga won't die - especially with people like you to support it. It's bigger than Commodore and bigger than any new company we run. There are a lot of you out there. About five million loyal and devoted fans. And there are a lot of Amiga titles - about 4,000. And there are a lot of Amiga-specific magazines - about 600,000 copies are sold a month. And that doesn't include all the manufacturers of peripherals, the servicing agents and so on.

"It's a huge industry. And it will go on regardless."

We agree.

- Andrew Farrell



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17 Bit Continuation	\$59	AlfaScan 800 800 dpi, hand scanner	\$319	Distant Suns 5	\$95
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E & O E

New DPS Gear

► Digital Processing Systems' DR-3150 Personal Animation Recorder (PAR) is now available in Australia, from Quinto Communications. The PAR lets you record and play back computer animation straight from a dedicated hard drive, eliminating the record VCR and single frame controller typically used for recording rendered or other animations. The rendering software simply renders direct to the PAR, which plugs into any Zorro II slot. You can send the PAR 24 bit IFF or Video Toaster framestore files, and it's compatible with packages like Real 3D, MorphPlus and Imagine. You can

also build sequences from pre-rendered files.

The PAR connects to a standard IDE drive, and with a 500Mb drive can store between three and five minutes of video, depending on complexity.

With the optional AD-3000 Real Time capture Card, the PAR can digitise regular video from composite PAL, S-Video, or Component Beta-cam inputs.

The PAR lists for \$3641; the AD-3000 card is \$2004. Before you get excited, the prices are ex tax.

*For more info contact:
Quinto Communications on
(02) 417 5166.* □

New A64

► Don Quixote Computers now have the latest version of the A64 Commodore 64 emulator for the Amiga, which sells for \$99.95. This package used to be available from PD libraries, with the hardware available from the author; now it's strictly commercial. Registered users of earlier versions can upgrade for \$39.95.

A64 v3.0 features an all new manual, compatibility with all Amigas, rewritten sound emulation, improved

graphics emulation, disk drive support and A64 Mon with over 40 commands. The A64 tools have been rewritten, and there's a new, automatic Convert utility.

A64 also features Fast Loader support for ISEPIC and GEOS - but you can only use GEOS if you've got a 68000 based Amiga. You can add up to 2Mb of C64 RAM.

*For more information, call
Don Quixote Software on
(076) 391 578.* □

Workbench 3 A-Z

► Another in Bruce Smith Books' Amiga reference book series, the Amiga Workbench 3 A to Z supplements the existing A1200 Insider >Guide, and gives an alphabetical guide to all Workbench features, and describes everyday Workbench usage in step by step terms. There are also more in-depth tutorials on setting up the Amiga with the various Workbench based

utilities.

There are annotated and captioned screenshots throughout the book, and the idea is to give beginners and more experienced users a useful supplement to the Commodore manual. The book is 256 pages long.

*For more information,
contact Hotpoint on
(02) 634 6499.* □

AS&S 68060 Board Ships!

► AS&S, the people who make the Blizzard accelerators and the Z3 Fastlane, are said to be shipping the first MC68060 based accelerator board for the Amiga. Called the Cyberstorm, it's a modular board which at present only works on the A4000, though 3000 and 4000T versions are planned (support for the A3000 and A4000T is planned).

The Cyberstorm is available with a 40MHz 68040, or a 50MHz 68060, for about 35 and about 90 MIPS, respectively. It also supports RAM expansion up to 128Mb using standard 32 bit SIMMS.

There are also supposed to be two expansion boards

are in development, although the non-arrival of daughterboards for high end Amiga hardware has become something of a running gag. One of the proposed boards will feature a fast second level cache for the processor board. The other one will be an I/O board, adding the Fastlane's Fast SCSI II interface, ethernet and a high speed serial board.

Prices for the daughterboards aren't available yet, but the 040 Cyberstorm lists for \$US1250. The 060 is \$US1812, and a version with no processor, for people who've already got a 4000/040, costs \$US687. No Australian distributor has been announced. □

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Typesmith 2.5

► Soft-Logik has released an updated version of TypeSmith, by far the best Amiga font editor. TypeSmith 2.5 adds support for Microsoft Windows and Macintosh TrueType fonts, improved PostScript font hints, more ARExx commands and improved printed font previews.

TrueType support is the most important new feature - TypeSmith 2.5 can load and save the ubiquitous font format, so Amiga users can bow buy or download TrueType fonts and convert them to another format for use with Amiga software.

TypeSmith 2.5 can now load and save fonts in TrueType, PostScript, Compu-graphic Intellifont, SoftLogik and IFF RFF formats. Font conversion is now easier, with a standard ARExx macro included to batch convert entire directories at once.

TypeSmith 2.5 has a list price of \$US199.95, with upgrades \$US40 including shipping.

Solutions Rendered are handling TypeSmith in Australia; contact them on (02) 838 0733.

□

New Monster Video Company

► Digital Creations, Progressive Image Technology and eight senior staff members from NewTek have merged into a new company, called Play Incorporated.

Progressive made video hardware for the Amiga and other platforms for years - effects hardware, genlocks, digitisers, time base correctors and so on. Digital Creations wrote the software for all the Progressive gear, and also came up with freestanding video paint programs and a few games for Electronic Arts.

NewTek, of course, is the company that gave the world the Video Toaster and its as-

sociated Lightwave rendering software, whose Toasterless PAL version is selling like hot cakes. The NewTek group includes Paul Montgomery, who used to be Vice-President, along with NewTek's former directors of sales, marketing, and software development. The group also includes key Toaster software engineers and Kiki Stockhammer, NewTek's general purpose cover girl and spokesperson since the early days.

Play Incorporated promise to have the first of their new video products shipping in late November.

□

Communicator II Big Improvement

► Eureka has improved their Communicator CD32 interface, which lets you plug a CD32 into a standard Amiga and use it as a remote drive and more. Version 2 lets you view PhotoCDs, create Full Motion Video (with the CD32 MPEG card) or audio presentations with the Communicator, Scala and Media-point driver. Or you can use it a CD-ROM.

One new features is the virtual CD disk concept, which enables users to configure the Communicator II to automatically boot the program used most. It uses the CD32's non-volatile RAM to store the data.

Also new is CD-ROM device support (making the CD32 look like a drive on your system), the integrated menu system and added high speed modes - none too soon. Communicator II is billed as running at up to 210000 baud on a 68040 machine, with extensive adjustments possible and a speed test feature.

The user interface has

□

been completely rebuilt, and visual feedback is given when the CD32 receives commands - playing CDs, setting the baud rate, transferring files and so on. There's also a hardware test button which automatically tests the quality of the connection between the CD32 and Amiga.

The Communicator II hardware has an extra A2000/3000 keyboard socket next to the standard CD32/A4000 keyboard socket. The serial cable to the amiga is now a DB25 serial to RJ10 jack (telephone) plug; this can easily be changed. The Communicator to CD32 connector is strengthened and the Communicator's LEDs are now on the front.

The cheaper Communicator Lite II lacks the LEDs, MIDI, keyboard interface and the advanced power control of the Communicator.

For more information contact Sigmacom on (02) 524 9846.

Use EGS with a NEC 4FG

► GVP's EGS card doesn't work with NEC's 4FG monitor. We know, we've tried. But it turns out the problem is easily resolved, with a

small cable modification - simply tie pin 5 to ground, and pass the rest through. That's it. Have fun!

□

Stay a while - stay FOREVER!

Impossible Mission Lives! If you don't know what we're talking about here, it's the original and best platform puzzle game, now more than a decade old (that's a LONG time for a computer game!). In the interim there was Impossible Mission 2, also a good game, and now there's Impossible Mission 2025. We're not sure what happened in the intervening 2023 versions, and we don't care, since this latest one claims to combine elements of the first two and add some new bits as well.

There are 15 levels, and you can play a robot, a gymnast or a soldier. Naturally, the game's touted to crawl with bonuses, bad guys and sub-games, and that danged timer will still be ticking away. Better yet, you also get a copy of the original Impossible Mission thrown in for nothing!

IM 2025 also comes in ECS, AGA and CD32 versions, so there should be something for everyone. Look out for a review soon!

Beefier CD32 Controller

The CD32 control pad isn't very good. That little rubber thing, if you bother to stick it on, comes off. The pad feels squishy. It breaks. Clearly, Something Must Be Done.

It has been, by the people who make the interminably titled Competition Pro Super CD32 Professional Control Pad. It's a 10 button controller with a somewhat Sega-ish look to it, and along

with sturdier construction and better ergonomics, it offers slow motion, autofire and a turbo mode. Again, hang in there for a full review!

New CD32 Titles

By the time you read this, Team 17's Arcade Pool should be out for CD32, with enhanced "pub-mosphere" audio tracks, animation and a floppy save option. The UK price will be UKP14.99, but who knows what we'll pay here.

The Arcae Pool disc will also contain demos of Superfrog (same as the standard AGA version) and SuperStar dust, which promises to arrive in October and be even more astounding than the original!

Also from Team 17 will come Alien Breed: Tower Assault; a brand new 54 level super-enhanced Alien Breed game with nine minutes of rendered story graphics, and Alien Breed 2 on CD thrown in as a bonus.

There are three other titles in development; King Pin is touted to be an attractive, playable ten pin bowling game; A.T.R. is billed as a super playable overhead racing game, and King Of Thieves will be an "Arcade/Action/Strategy extravaganza!"

Other titles in the pipeline include Marvin's Marvellous Adventure from 21st Century, Scavenger 4 from Psynosis, World Class Cricket from Audiogenic, Jungle Strike (the successor to Desert Strike) from Ocean, Mega-Race from Mindscape and Pinball Illusions, again from 21st Century

Eat Carpet

Markus Kostainen of Goodna, Qld, spotted Amiga graphics on SBS's Eat Carpet program, in a segment called "Holding the Viewer". The credits listed an A3000, DC-TV, DPaint IV and DigiView. He also spotted an A500 keyboard in a specially designed metal casing at the local RSL, in an office, where it was being used to display text messages with various transitions on the in house TVs.

Downer's 4000?

Peter Whisson of Berkely Vale, NSW, is pretty sure that he sighted a familiar Amiga Lissajous figure screen saver on the ABC 7:30 Report on Thursday the 4th of August. Apparently running on an A4000, it was tootling away to the right of Alexander Downer, who was being interviewed about his Aboriginal laws. He also congratulated us on the new Amiga Review format, but it takes a bigger suck than that to get a prize out of us.

Yeah Right Department

Rebekah Hatch of Bayswater, WA, had some downright startling revelations about a certain major chain of amusement parlours. She has it on good authority that they use genlocked A500s with laser disc players for some of the most extravagant games. The shooting and race car games, all those ones which are supposed to run on superpowered custom built chipsets, are all secretly A500s!!!

Rebekah then let slip that in return for the personal dan-

ger she suffered in disclosing this top secret information, she'd be willing to accept a free subscription. To which we say - take her away, officer!

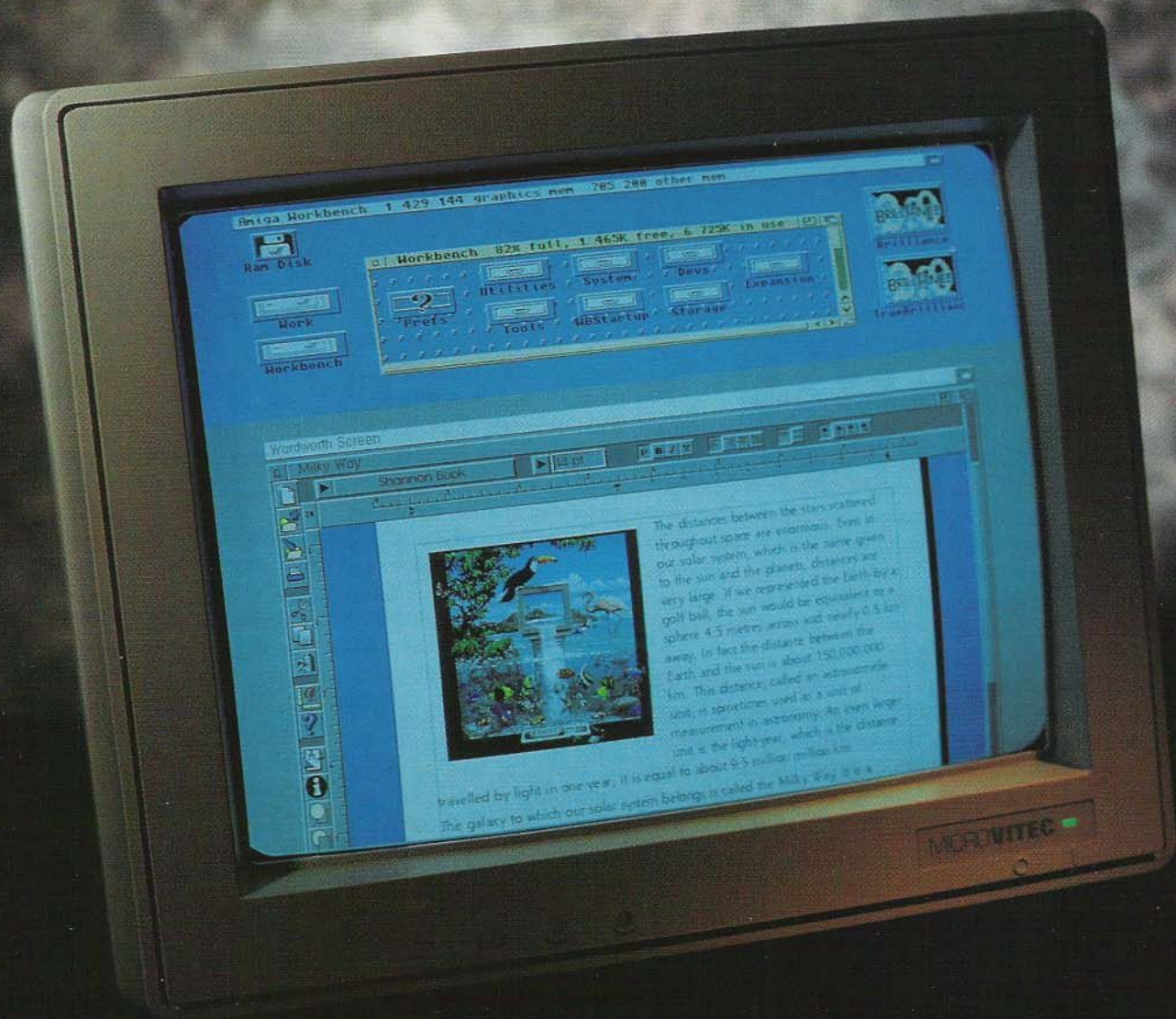
Professional users

Bryan Smith of North Rocks, NSW, spotted three Amigas at the SMPTE '94 (Society of Motion Picture and Television Engineers) show. The first was a A4000/040 running Scala MM300 for an Amiga based graphics workstation made by Amtech Australia called MediaFlex. I also noted that it had DPaint, Final Copy, and various other programs on the hard drive. The second spotting was an A3000 running ADPro and using an Amiga Y/C genlock to capture some images and do them up - Bryan thinks the company name was DPS. The final spotting was an A1200 used by Pioneer to run Pinball Fantasies on their huge 1.2m x 5.1m video wall!

Bryan wanted to know if this little lot was worthy of a free sub; the answer is... (drum roll) yes!

Earthquakes and smeg

Daryl Misiak of Morphet Vale SA picked an Amiga on a Channel 7 documentary about earthquakes. A scientist type walks into a room and starts to type on an Amiga keyboard - showing the distinctive caps lock and shift keys. He also spotted a couple of C64s amongst the techno-dreck in the sci-fi comedy Red Dwarf, in which a previous spotter had found an Amiga too.



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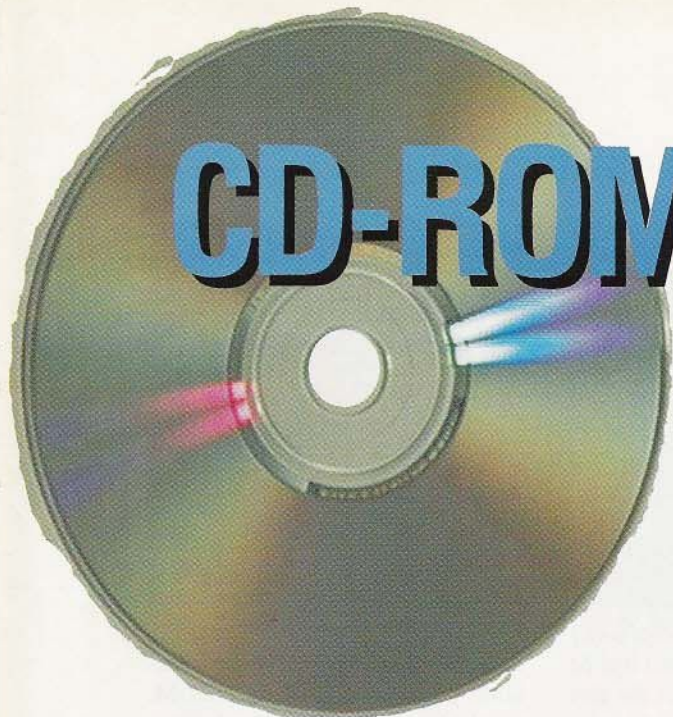
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CD-ROM Upgrades

The NEC Triple Spin

By Daniel Rutter

► Compact Disc Read Only Memory, as it is known to people who are paid by the word, has been with us for a while. There's now a pile of PC software that comes on CD - and the reasons are obvious. A single compact disc can hold more than 600Mb of data and deliver it at better than ten times the speed of a floppy disk, and the CD itself costs very little to press.

The down side is that you need a CD-ROM drive to access the data. PC CD-ROMs are getting pretty cheap - you can get them for less than \$300 and control them from a sound card. Amiga drives, however, are more expensive.

This is because PC CD-ROMs generally use cheap proprietary interfaces that aren't compatible with anything much else. Amigas, however, generally use the faster, more expandable SCSI interface for their mass storage devices, and so have to use more expensive SCSI CD-ROMs. SCSI is largely wasted on CD-ROMs, with their low data transfer speed, but if you've already got a SCSI controller (and virtually all hard disk equipped Amigas, save 1200s and 4000s, have) it's silly to add more boards than you need.



The need for speed

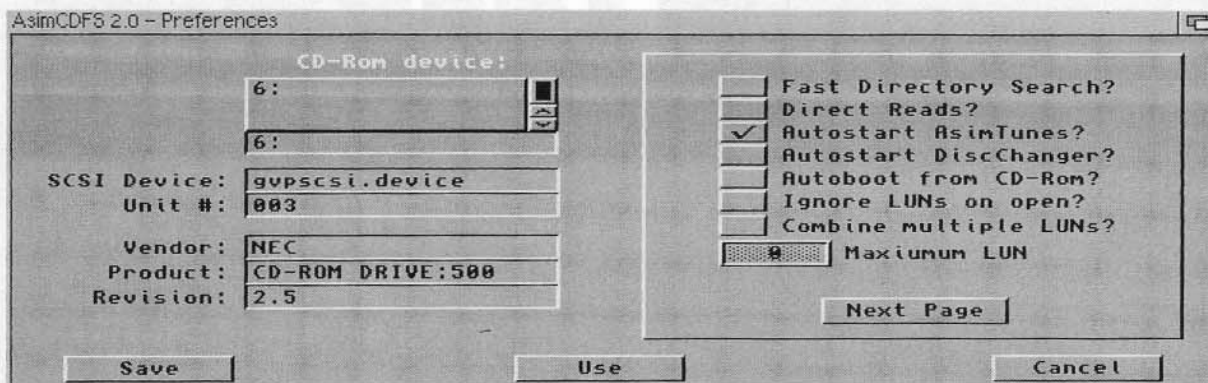
The NEC MultiSpin 3X drive is a SCSI drive, and its hefty price tag is justified by genuinely higher specification. This isn't just another double speed drive that happens to have a SCSI interface; it's triple speed.

Single speed drives, which today survive as supercheap discount store specials and audio players only, can transfer 150k of data per second. Double speed drives, the standard at the moment, do 300k. And triple speed does 450k. At least, it does on an Amiga. If you want to do it on a PC under Windows you need spe-

cial driver software. Just thought you'd like to know that.

NEC also make a quad speed drive, but since that retails for not much less than \$2000 it'll be a while before anyone stampedes to buy it. Triple speed is around half that price, and gives three quarters of the power.

The 3X's front panel looks odd, with a flip-down curved door covering the power-load caddy slot (of which more later), a little LCD display to tell you what's going on (no LEDs), a classy bevelled volume wheel, an eighth inch headphone socket and four buttons for controlling audio CDs. There's also a weeny hole for popping out



discs with the power off - the manual impressively states that you require a "steel rod about 1.2mm in diameter" to accomplish this task, then sheepishly admits that a paper clip works.

The drive as tested was in an external case, which is not actually the case that comes with the external 3X drives. It was from an earlier model, but it shares with the later design externally switchable termination and SCSI address, twin 50 pin Centronics connectors and a couple of RCA sockets for hooking up the CD audio. The later model looks a bit sexier, but both cases are excellent.

Setting up

The internal 3X drive installs into any 5.25 inch bay with a front panel hole, and has standard mounting points and included hardware. No magic is required, and the manual amply covers setting SCSI ID and termination with the jumpers on the back.

Hookup was utterly simple, as it tends to be with a SCSI device. Click, click, set the address and presto, the 3X coexisted with my two hard drives and Bernoulli removable.

The only hardware feature I disliked about the 3X is that it's a caddy drive. These take CDs in special protective plastic cartridges - the original CDTV uses the same system. The idea is that the easily

damaged CD-ROMs are kept away from the bad old world, and it'd be a good one if it weren't for the fact that nobody ever seems to have as many caddies as discs. One comes with the drive, but if you don't have enough you're more likely to damage discs by fumbling them into caddies than you would be if you had a tray-load drive. Caddies also make a nonsense of using your CD-ROM drive to play audio CDs - fortunately audio CDs are far more tolerant of little scratches, but who wants to fiddle with a caddy every time you change a disc?

Extra caddies are \$15 each; if you're careful with the discs and always put them back in their jewel cases you should be able to get along without them.

Performance

Nic Wilson's SysInfo reported a read rate of 443k/second from the NEC drive, which was near enough to 450 for me. The limiting factor for CD drives is seek speed - the time it takes the drive to find the data, before it starts transferring. The NEC's quite nippy in this regard, but it depends what you're accessing. Skipping all over the supplied Fred Fish CD-ROM (see below), I really noticed the slowness of CD seeking.

Software

Installing the driver software was easy. There are several CD

filesystems available for the Amiga including freely distributable packages like AmiCDROM, available on Fred Fish's Amiga-LibDisk 935, but I chose Asimware's AsimCDFS 2.0, a commercial package with a lot to commend it.

For a start, installation's dead easy. AsimCDFS uses Commodore's Installer utility and automatically finds your drive once you've told it what controller you're using. It installs a Preferences program to set a load of driver options and two more useful utilities.

AsimPhoto is a PhotoCD displayer which also allows you to save PhotoCD images as 24 bit IFFs. PhotoCD as a home snapshot medium is of dubious value, since the images take so long to display and can't be seen without expensive hardware, but for archival storage of high grade images it's an excellent format - using AsimPhoto you can convert the images you're using into more manageable IFFs whenever you need to, and keep the hulking great things off your hard drive and on one slim disc the rest of the time. Naturally, the 3X handles multi-session PhotoCD.

AsimTunes is an audio CD player program. Its interface is, to be frank, ugly, but it's quite a powerful package. You can set it to pop up whenever you insert an audio CD, and you can also pro-



gram AsimTunes with the details of every CD in your collection, so it knows the name of every disc, every artist and every track.

You can set certain discs to automatically play, and exclude tracks you don't particularly care for. You can also print any or all data about a disc or discs. Combined data/audio CDs automatically have the data tracks screened out.

All this sounds rather nifty, until you realise you have to type in all the details. All AsimTunes can do for itself is figure out the same basic information a regular CD player can; all the rest comes from you. If you've a burning urge to build a database of all your CDs, AsimTunes' power will suit you well, but otherwise it's overkill.

The DiscChanger utility lets you switch between partitions on those rare CD-ROMs that actually have different partitions - maybe different archived volumes, or an IBM and a Mac version of something.

DiscChanger, AsimTunes and AsimPhoto all have complete ARexx interfaces, so the automation-crazy can integrate their systems. This also lets you do such simple things as hook up an "eject" button in your ARexx-aware directory utility.

You need at least Workbench 2 to use AsimCDFS, and it only works with SCSI CD-ROMs.

Free CD!

A big selling point for AsimCDFS is it comes with the Fishmarket CD-ROM, which is a disc containing most of the Fred Fish AmigaLibDisk freely distributable software library - discs 260 to 1000, in the version I got. The discs are arranged simply in directories, with no annoying compression or bulletin board frills (Fred Fish's own discs have attracted some anger from users thanks to their less than optimal construction). I love this disc, and it makes AsimCDFS excellent value at \$99.

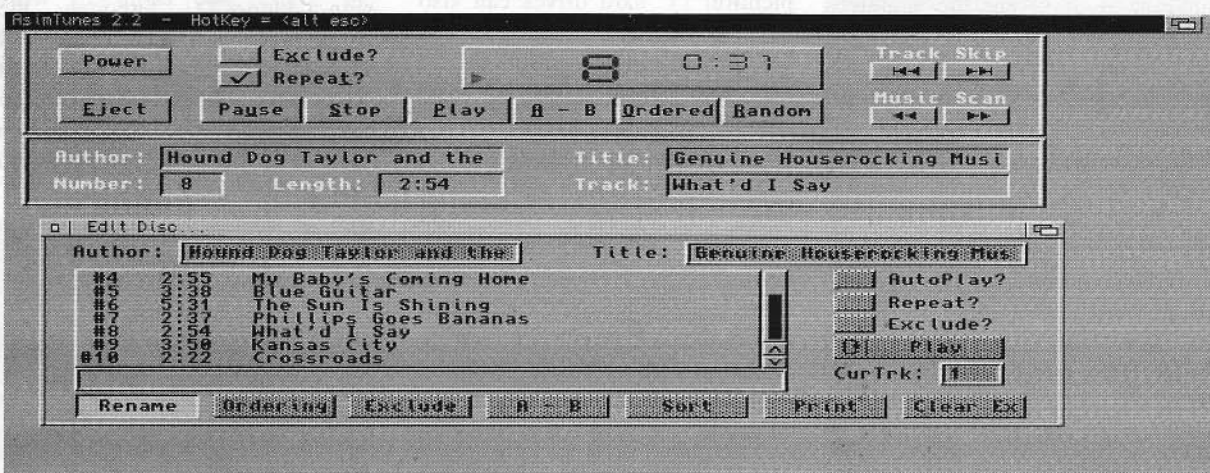
The AsimCDFS manual is great, covering everything you need to know in plain English. The 3X's manual is also good, with that distinctive spoonfeeding tone you get from all the monster hardware makers. Who cares, all the info's there.

Regular readers will remember that at the end of my review of the Iomega Bernoulli 150 removable cartridge drive I said that the clincher was I was going to buy one; well, I'm not going to let the 3X go back to the dealer, either!

CDTV/CD32 Compatibility

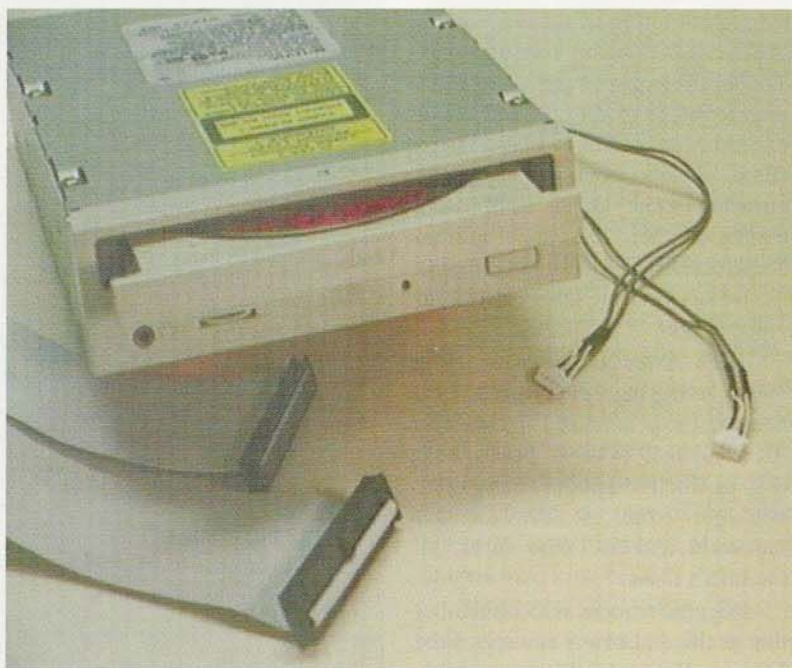
Commodore's first CD based machine, the revolutionary but unsuccessful CDTV, had a reasonable collection of software. Don't expect to use any of it on either of the drives reviewed here, though; since both of them load a device driver for the CD drive during boot, it's impossible to boot from the drives. Running CDTV software from Workbench is possible but not dreadfully likely, as all the assigning and similar mucking about in the world won't save you if the software expects CDTV hardware.

CD32 software is even less likely to work, unless you've got an AGA machine, in which case it's conceivable but I wouldn't put any money on it.





The Low Cost Alternative



► Snazzy the NEC drive may be, but cheap it ain't. Wouldn't it be nice if you could use one of those inexpensive IBM CD-ROMs on your Amiga? They all use annoying non-standard interfaces, though, and given the smaller Amiga market there's little financial incentive for the manufacturers to come out with Amiga controllers. Third party controllers are just as difficult to develop, since there are so many control systems, which are typically copyrighted to the hilt.

The solution is to choose one of the more common non-standard interfaces, for example the Mitsumi IDE interface. There are quite a few models of drive which support this interface; they're not

as cheap as the bargain basement ones that come with PC sound cards but they're still cheaper than SCSI.

For some added value, throw in an IDE hard disk interface so the plentiful PC hard drives can also be used on IDEless Amigas, and sell the resulting controller card nice and cheap - how's \$169 sound?

The Tandem CD+IDE Controller is this card. It's just a tiny thing - 13 by 7.5cm, with eight chips and a couple of 40 pin connectors, one for the hard drive cable and one for the CD-ROM. It takes up one Zorro II slot, and installation is dead simple. If you're running a pair of daisy-chained IDE drives as well you could be in for

some irritating hoop-la (IDE drives are known to develop personality conflicts), but the single CD-ROM, no hard drive arrangement I tested went off without a hitch.

The software that comes with the Tandem card is as easy to install as AsimCDFS, but not as powerful. There's a preferences program that lets you tweak the interface settings, which has far fewer options than Asim's but works fine nonetheless for the bulk of applications.

The CD audio player has a smaller interface than Asim's (which opens its own screen), but it's still not very pretty. There's no database function, but for simple track access it'll do. Other little utilities are included to put an eject button on the Workbench or kill the CD device; it's all quite self-explanatory.

This is just as well, because the Tandem's manual does its bit toward saving the world's forests by being positively anorexically slim. If installation of hardware or software were more complex, the paucity of documentation would be a serious failing; as it is, only true beginners will strike problems.

The drive as tested was the Mitsumi CRMC-FX001D. It's a tray load, double speed drive which is compatible with multisession PhotoCD, although the software doesn't let you convert PhotoCD files into IFFs. If you get AsimCDFS, the AsimPhoto utility will work with the Tandem filesystem just fine and let you convert the files.

“Why should IBM users have all the cheap CD-ROM drives - and hard drives, for that matter?”



One problem you may have with the Tandem setup is that no CD audio connector is included. This is not surprising. PCs controlling CD drives from sound cards invariably have a little cable that takes the CD sound to the sound card, where it's mixed with the sound card's own output and the mixture goes to the output jack on the back.

The Amiga, however, has no such provision. Fortunately, making a weeny four pin plug to twin RCA or similar adaptor cable is a trivial task for anyone who can use a soldering iron - the drive comes with the IBM-type cable, so it's just a matter of cutting off one end and grafting on regular audio connectors. If you're just going to use the drive for data, or don't mind listening to your audio CDs through headphones, you can get along without one.

A point in the Tandem's favour is its tray load system. If you transfer CDs straight from their jewel cases to the drive and keep an eye out for grot on the tray, this system should work well, with nothing more to buy. It also makes it far simpler to deal with Audio CDs.

The tray is shallower than most, making it easier to mis-seat the CD, but this isn't a big problem. The only real problem I've heard of with tray drives is the same one people have with tray-load CD players - accidentally smashing the tray off while it's out. Watch where you put your elbows!

Overall, the Tandem/Mitsumi combo at \$669 the lot isn't a bad deal, considering you can also hook cheap hard drives up to the board. It'd be nice to get interfaces for the dirt cheap IBM drives, but it'd also be nice if there were no taxes. Personally, I think the extra \$300 for the 50% faster NEC drive and software is well worth it; if

you don't have a SCSI controller you could pick up a cheap second hand A2091 or similar antique; any old SCSI controller will do for a CD-ROM, even triple speed.

Thanks to Solutions Rendered for supplying the NEC 3X drive, AsimCDFS 2.0 and also the Mitsumi drive and Tandem controller. The internal 3X drive is \$899, external is \$999. AsimCDFS is \$99 by itself or \$75 with one of the 3X drives. The Tandem controller by itself is \$169; with the Mitsumi CD-ROM drive it's \$669.

CD Terminology

CD-ROM stands for Compact Disk Read Only Memory, a storage system that gives a very large amount of data (more than 600Mb) on a small, cheap and fairly durable medium. The disadvantages of CD-ROMs are that you can't write to them - unless you spend quite large dollars on a recorder and the special discs it uses - and data access isn't nearly as quick as hard disk, though it's better than floppy.

One of the most important features of a CD-ROM drive is its speed - how fast it reefs data off

the disc and pumps it towards the computer.

CD-ROM drives are broadly classified into 150 and 300 kilobyte per second drives, two categories often also referred to as single or double (or multi) spin (or speed).

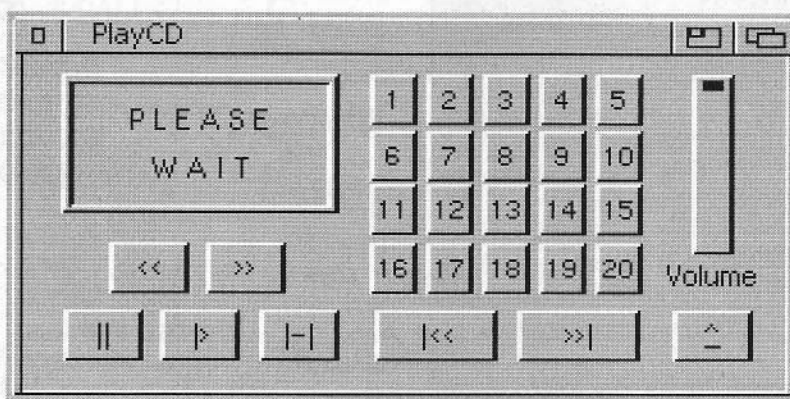
Double speed drives do, indeed, spin twice as fast as single speed, and so can grab data twice as quickly. 150 and 300k/s are nominal figures; drives can be faster or slower, but should come in around these figures. The new triple and quad speed drives are as much faster as their names suggest.

For comparison, your floppy drive does less than 50k/s.

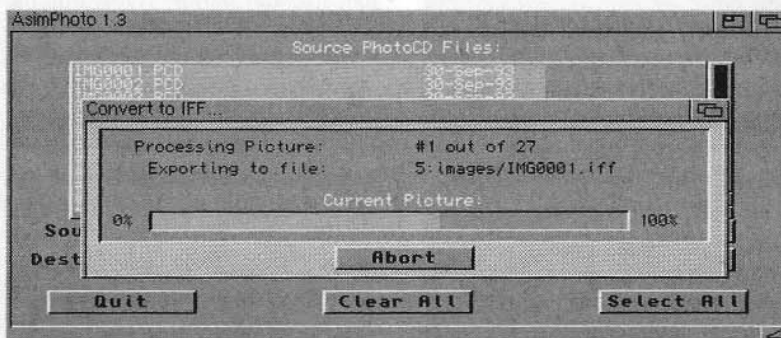
PhotoCD

Kodak's PhotoCD is a recent development, which uses CD-ROMs to store photos. The idea is to have all your negatives transferred to CD before they're turned into prints. At this point you can view the images on your Photo CD compatible drive and choose which ones to have processed, or simply keep the CD as permanent storage.

You probably won't fill a CD in one hit, so it's desirable to be



The Tandem driver software's player program doesn't have the database frills of AsimCDFS' effort, but neither does it take up a whole screen all by itself.



Asim's AsimPhoto utility - the only major thing the Tandem software lacks. It's not fast, but nothing to do with PhotoCD ever is.

able to take the same CD back to the processing lab to have your latest snapshots added. This facility is called multisession, and is a separate feature from the ability to actually access PhotoCD's. Most double speed drives are multisession compatible, and can read Kodak PhotoCDs. If a drive is PhotoCD compatible but doesn't handle multisession, you'll only be able to view the first batch of pictures on a disc.

Zappo CD-ROM

By the time you read this, SigmaCom should have stock of the Zappo CD-Rom drive, an expansion for the A1200 that plugs into the PCMCIA card slot and gives all the advantages of a regular double speed drive plus the ability to run CD32 and CDTV software! The CD32 compatibility is achieved by software emulation of the essential Akiko chip; the drive is said to run Microcosm faster than a real CD32. Interestingly, from the pictures we've seen the drive mechanism in the Zappo seems to be the same as the Mitsumi drive in this review. Look for a review soon, and ring SigmaCom on (02) 524 9846 for pricing.

There's some question as to whether Photo CD compatibility is of much use outside of the professional world. If you have a particular need to have lots of images on call to sort through - for example if you're a professional photographer, graphic designer, art gallery owner or similar - then you'll love it.

However, most of us are not mad keen on having to turn on the computer to look through the family snaps - particularly since viewing the images can take a while. One thing it is good for is photographers who regularly shoot one or more whole rolls on one subject and know they're only going to want one or two shots as actual prints.

Why get a CD-ROM?

There is less incentive for Amiga users to get CD-ROM drives than there is for PC owners. The PC world's got tons of shareware CDs and also games and applications which are only available on CD, like Microsoft's Encarta encyclopedia. CD-ROM equipped PCs are now made by every manufacturer.

Amiga CD software, on the other hand, is thin on the ground. Very thin. CD32 and CDTV stuff there is, but it won't necessarily

work - see the Compatibility sidebar. And you can read any MS-DOS CD-ROM, but most of them are useless. So why get a CD-ROM?

Well, I personally think it's vastly cool that I can have Fish disks 260-1000 on line at all times, with much faster access than looking through my wall of disk boxes (now I just have to figure out what to do with all those old Fish disks...). I also love the Amiga CD-ROMs; between Fish and Amiga you've got just about all the Amiga's current freely distributable software, except for demos, Soundtracker modules and the like. These two discs allow me to scrap a load of hard drive-filling software that I seldom use but was loath to delete.

If you're into desktop publishing, you can use discs intended for IBM or Macintosh machines containing TrueType or Postscript Type 1 fonts. TypeSmith 2.5 can convert TrueTypes into Amiga CompuGraphic fonts, and Wordworth uses TrueTypes directly. PageStream and Pro Page can both handle Postscript fonts; PageStream loads them straight in, Pro Page comes with a converter program.

Likewise, IBM clip art discs with images legible to Amiga programs - PCX, GIF and so on - are perfectly usable. There are, however, a lot of duff graphic CDs out there; preview before you purchase!

Our more masochistic readers will be pleased to know that the soon to be released PCTask 2 will run Microsoft Windows, so it's conceivable that Windows CD-ROMs could be used on an Amiga with no extra hardware. We'll believe this when we see it, though, and we doubt we'll be seeing it moving very quickly.

□

Piracy:



the inside story

By Paul McLachlan

Software theft, commonly known as piracy, is a problem with the Amiga that is often swept under the carpet. It is a subject that we have seen very little about recently, and aside from being appropriately annoyed at various copy protection methods we have effectively ignored it. Ignoring it has never, however, been a solution to a major problem. Though the methods for protecting software are becoming more and more complex, software theft is still present and still, I believe, increasing. So we now delve deep into the sea of software piracy for the uninitiated.

What is Copied

The first thing to realise is that it is not only entertainment software, games and the like, that are being pirated. It is possible to obtain all sorts of productivity software as well, from word processors to compilers. Anything that is not in the public domain is being pirated.

Copy Protection

It is theoretically impossible for software to be so protected that it is uncopyable. Any copy protec-

tion system can be taken out, or changed through reverse engineering and disassembly techniques. All that software companies can do is make this extremely difficult. There are several methods that companies producing copyrighted software have developed in an attempt to stem software piracy.

Manual protection

The manual protection technique requires an extra effort on the part of the user every time the software is run. "Please enter word 3 on line 2 of page 32 of the manual." Very annoying in my opinion. Some notables have been blessed with this type of copy protection, including one of the most recent, Frontier. The advantages of such a scheme include the ability to install the program on a hard drive, as well as the ability to make backups of the software. There is only one disadvantage, but it is rather major - manual protection annoys the legitimate users of the product.

On-disk protection

On-disk copy protection is the other classic method of preventing piracy of games. The ultimate aim

of this form of protection is to make copying the disk impossible; unfortunately, this form of protection seems to be circumvented by hackers relatively easily (or at least regularly). On-disk protection has no annoying requesters for information, but it is impossible to make backups of the disks and boot-block viruses have been known to devastate such software (because it usually has a non-standard bootblock, which the virus overwrites). More often than not, you can't install on-disk protected software to a hard drive, which with the rising number of hard drives out there is an increasingly foolish position for a company to take.

Licensing

A method originally employed by large companies (read: Microsoft) was to make licensing agreements, and write this into the software for companies. We are now seeing such methods being employed by commercial and shareware programs on the Amiga, such as Superbase or LhA (which uses a keyfile system). This method uses what could be termed "scare" tactics against purchasers to prevent them from copying the



software. It works something like this: "In this program is a registration number which only we can see. In fact, there are many. The number can be traced back to you, and if we find a pirated copy with your number on it, we will take legal action against you." It terrifies the general user populace into not copying the program, but has the disadvantage that once a hacker manages to obtain two legitimate copies he can start comparing them, noting differences and before long can remove the number or, even worse, change it.

Dongle protection

This relatively new method of copy protection is hardware based. Some bright spark realised that no-one had ever pirated a mouse, and decided that to protect their program they were going to make it use hardware. Wonderful. Now some users have 9 different "dongles" that are all supposed to go in the one slot on their computer, and are forever pulling them out and in. This is especially frustrating because it not only wastes the user's time, but will also eventually damage their Amiga. The technique is made even more useless (if that's possible) because it isn't even foolproof. Brilliance uses dongle protection, and the guy who hacked it merely complained about the number of references to the dongle he had to take out.

This form of copy protection

not only doesn't work, but it frustrates users and is expensive to develop and write into the program.

How the methods are overcome

We all know that piracy still occurs. While the above methods will all halt a casual software pirate, such as the kids at the local school, they do little to stop the guys who know the Amiga inside out, and will sit down for days to remove the protection from a program. Groups of these people, called crackers, are commonplace. Individuals who team up can often get programs cracked and re-released much faster; they can also produce prettier demos. While many of these groups are based overseas, the "warez" find their way to Australia quite quickly.

Lockpick

A program called "Lockpick" particularly concerns me. This program has gone beyond X-Copy, which is questionable in itself. Lockpick is what is known as a parameter copier. Parameters are effectively instructions on how to remove the copy protection from programs. Lockpick contains parameters for many commercial games and programs. Not only the disk protection - it also offers to take out any manual protection as well. Now this program can actually be bought from PD suppliers!

Of course, there is hype like: "Please remember: this is for legitimate use only. Piracy is a crime!", but unfortunately there is NO legitimate use for such a program. Most commercial licenses state that it is illegal for you to modify the program in any way.

While what the PD sellers are doing is technically legal (Lock-

pick itself is freely distributable), I believe it is a serious breach of ethics. Until now, the program has only been available on "elite boards" - despite its freely distributable status, people just never considered putting it on a normal board. Lockpick has not previously been generally available, and it should have stayed that way.

Cool! So where do I get them?

There was a time when you could go out and purchase pirate copies of software, providing you knew the right people. While this is not commonplace any more, there are still many bulletin boards and user groups that engage in software piracy, even if not officially.

Bulletin Boards

Pirate bulletin boards can be classified into two general types: dedicated pirate boards, and simply boards with elite sections on them. Perhaps the most difficult part about getting access to a pirate board is getting the number in the first place. Usually it is a matter of either knowing somebody or watching a lot of demos. Most demos on the front of pirated software have numbers, but of course, if you already have pirated software you know where you got it.

Something that distressed me recently was finding a number for a large Australian pirate board in a demo that was not only generally available, but rather popular. If you simply read all the text in this demo you have the number of pirate boards all over the world, and one of the largest in Sydney, with three lines.

Once you have the number, and have given the board a call, it will usually not have anything



incriminating on the opening screen (unless the guy who runs it is really stupid).

Still, it has become fairly easy to decide whether the board you are on is a dedicated pirate board or not. For instance, many pirate boards give you absolutely zero access on the first call, with about 10 minutes online and only the ability to log off or leave a message to the sysop concerning answers to questions. These questions usually start with something like:

What do you expect to find on this board?

Duh.

Name someone else who is on this board and who knows you?

Many pirate boards require what is called a reference from someone else who is on the board before you are allowed access. To get past this stage you often need to know someone who is on the board, who will send a message to the sysop(s) for you and tell them that you are "all right".

Name three other boards that you regularly call?

Of course, the sysop(s) can then check with their other good sysop buddies to check if you are "all right", without having to go through the untrustworthy users.

Incorrect answers to these questions doesn't mean you are thrown off the system, just that you are ignored, left with no access, and generally discouraged from calling again. Please remember again that not all private boards are dens of pirates. Just because some sysop won't give

you access on their board doesn't mean that he's a pirate - maybe he just doesn't want you.

User groups

While I think that it is fairly safe to say that there no longer exist user groups that actively and openly engage in piracy, there are still certain elements that swap games before or after meetings. After all, this is a collection of Amiga people, and if they have a tendency to copy software, then this is the perfect place to do it. Unfortunately, this also brings newcomers into piracy.

People who had nothing to do with piracy before see a large crowd standing around a computer, wander over and decide that since everybody else is getting a copy, it can't be that bad. Right?

Accidental distribution

Even the best of us occasionally overlook something - we forget to check that upload or program we got in the mail for its freely distributable status and bang! Inadvertently we've got pirated software.

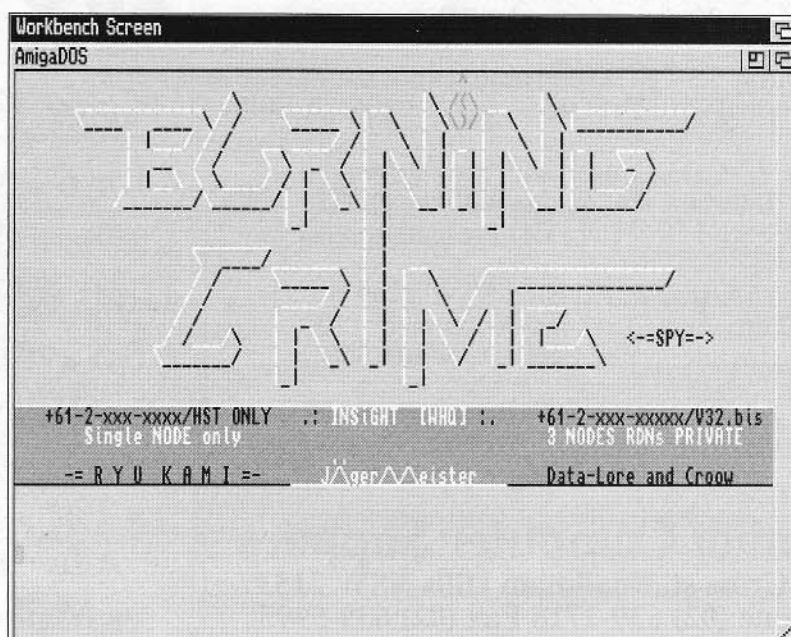
While occasionally something like this may happen, even to the best PD suppliers and bulletin boards, they will usually rectify the problem immediately if it is brought to their attention. Mistakes like this are just an unfortunate fact of life. Utility disks are also very difficult for PD houses to check out.

Cracking groups occasionally produce disks full of "cool" utilities. Often there are hundreds of utilities on the disks, many of them written by other crackers and freely distributable.

Often, hidden between obscure utilities are popular favourites, such as the Cygnus Editor, or one of the commercial versions of PowerPacker. These few exceptions are very difficult to spot, and the disks often just get put into the library, after some of the utilities have been checked.

The edge of piracy

Some actions are right on the edge of piracy. For instance, it is often illegal to make backups of your own original software. While this is illegal, should it be? Or is



this merely a reasonable precaution against data loss?

One of the common arguments against piracy (besides that it's illegal) is that it is killing the Amiga software industry. Software companies are continually raising their prices, and some developers are leaving the Amiga entirely. While normally this cannot be disputed, is making backups of your commercial software killing these companies?

Software piracy can be a very sticky issue. It has many fine lines that, I believe, are not all in the correct places yet. As the computer industry matures, with a little luck, we'll see the law modified to better reflect what is right.

□

GLOSSARY

Elite: A term for anyone who pirates software. Used in sentences such as: "Does this board have an elite section?"

Ware: Another word for pirated software.

Crack: To remove the copy protection from software

Train: To add a cheat mode to the program, usually in the form of a small demo when the software is loaded.

Recrack: Same as train.

Lamer: The origin of this term is debatable - it seems it originally described anyone who couldn't program in machine code, then extended to cover people who merely copy and distribute pirated software without doing any

cracking, and subsequently became a general term of abuse.

Alias/Handle: An alternate name for someone. Most (if not all) pirates hide behind these, but some people use them just because... well, just because.

Dongle: A small piece of hardware that plugs into your machine and has to be there in order for a given piece of software to work. Most go in the one place (the joystick port), and besides making multitasking between two pieces of software requiring them difficult (if not impossible), they annoy users and wear out ports.

X-Copy: A program from Cachet that comes with a special cable that goes between your disk drives allowing you to copy any sort of on-disk copy protected software.

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CD32 Paravision SX-1 \$489
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CD³² Expansion

Give your CD32 the power of a 1200!



SX-1

By Daniel Rutter

► The thing that puts the CD32 ahead of the rest of the game console rabble is that it can do a lot more than just let you zap aliens. It's a CD player. With MPEG, it's a video player, too. It slices, it dices. And, it was promised, it would be possible to expand the machine into a complete computer, with RAM expansion, keyboard, mouse, clock, serial and parallel ports and hard and floppy drives, and proper RGB monitor output instead of lousy composite and Y/C.

Unfortunately, in its last days Commodore development wasn't doing a whole lot, and so we never saw any official CD32 docking station. But have no fear - Paravision's SX-1 is here!

The SX-1 offers all of the above and a bit more, in a black steel box that plugs into your CD32's rear port. The video, parallel and disk drive ports are exactly the same as those on the 1200; the serial port's a nine pin IBM style that works fine if you use an appropriate (and commonly available) cable.

The SX-1 has only one Single Inline Memory Module (SIMM)

socket, but you can install in it a 1, 2, 4 or 8 megabyte SIMM. If you want more than 8Mb in a CD32, you presumably drive a jet powered Vespa scooter.

The keyboard connector's nifty - it takes an IBM keyboard, not an Amiga one. This is a good thing, because Commodore keyboards are at best of average quality yet carry a premium price tag. This way you can plug in a budget priced clone keyboard which feels better. Bargain.

Left Amiga is F11 on the clone keyboard; right Amiga's F12, and Printscreen's Help; the Home, End, Page Up, Page Down and Num Lock keys all work intelligently, and Scroll Lock can be used to enable a "sticky shift key" option for people who can't hit key combinations at once.

The SX-1 also takes IDE hard drives, and has an internal mounting for a 2.5 inch one just like the ones that inhabit the 1200 and 600. There's a connector on the back for external hard drives as well, though it's a weird 37 pin D socket, cables for which are freely available at your local branch of Proxima Centauri Computers.

Lousy looks

Physically, the SX-1's no oil painting. But then the CD32 itself isn't exactly a Pininfarina design, and there's only so much you can do with an expansion slot on the back.

There's a double edge socket on the connecting face of the SX-1 that does the same thing as the back cap on the standard CD32 - you can plug the Commodore MPEG FMV module in and it parks inside the CD32 the same way as it did before. Going clockwise around the box, you meet the 23 pin RGB connector, the weird IDE connector, the disable switch so you can turn off everything but the RGB port, memory and clock any time you like, the parallel port, the disk drive port, the serial port, and two DIN connectors for the keyboard and audio mixing.

This last is an odd one. It lets you mix another audio source with your CD32's sound. This is a purely analogue deal; there's no way to digitise the input sound, it's just a straight mix. It could thus be useful for karaoke or presentations, or something, but really it's



just an oddity. The mini-DIN connector as supplied is compatible once again with only Vagon audio systems, but there's an adaptor supplied that lets you use anything with a standard large five pin audio DIN plug.

Extra bits

Getting a hard drive and memory into the SX-1's no big deal. It's held together with four screws and comes apart easily. Inside, the 72 pin SIMM socket's obvious, and the pin header for the drive is to the left. The drive screw holes are on either side of the rear end of the SIMM socket, and you actually mount the drive upside down, under the board. Sounds nuts, but should work OK, particularly since suitable screws and spacers are included.

The drive header on the board is a standard 40 pin number, so you could cheat and use a regular cheap 3.5 inch drive in some sort of external case - it'd be easy to run the cable out of the spare DB25 cutout in the back panel. The manual says this is for installing a SCSI interface, but the interface doesn't presently exist so you might as well use the hole.

Compatibility

There have been no reports of incompatibility problems with the SX-1, and everything we tried

worked. If you strike a badly written CD32 game that gets puzzled by the extra bits, the disable switch should see you right.

You can even ensure compatibility with hard drives with a slow spin-up; there's a jumper which sets the SX-1 for a ten second boot delay, to give sluggish drives time to wind up the revs without you being presented with the "where's my disc" screen.

The manual

The SX-1's documentation is sparse. It's only 15 pages, but it does describe all the bits, give full installation instructions and tell you all the pinouts - and I do mean ALL the pinouts! if you're a raw beginner you may be puzzled, but generally it serves its purpose.

Problems

Generally, the SX-1 behaves itself very well. There's one physical problem - the box is a few millimetres wider than it should be, and so when you open the CD32's lid it pushes the SX-1 back a bit. This can't be good, and one can only assume that the densely packed circuit board just couldn't be made any narrower.

The SX-1's connection to the CD32 isn't that solid to start with; the CD32 back connector wasn't made for structural strength, which is why the original backcap is held on with a screw. If somebody picks up the CD32 with the SX-1 attached, damage could result.

The nine pin serial port is mildly annoying; you'll have to buy a new cable if you want to use serial peripherals from another Amiga. But this is made up for by the cheap AT keyboard.

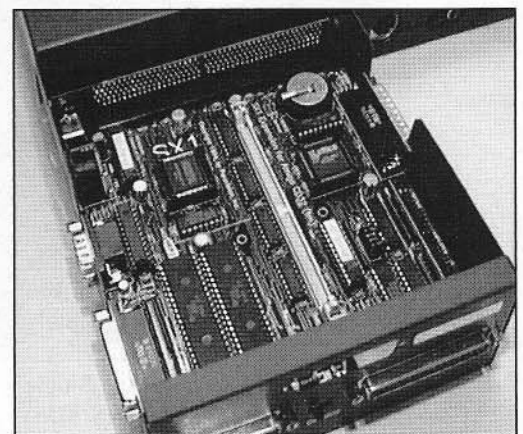
The standard CD32 power supply is also notoriously weedy. Let's face it, it was designed to run one tiddly game console, not extra RAM, hard and floppy drives and

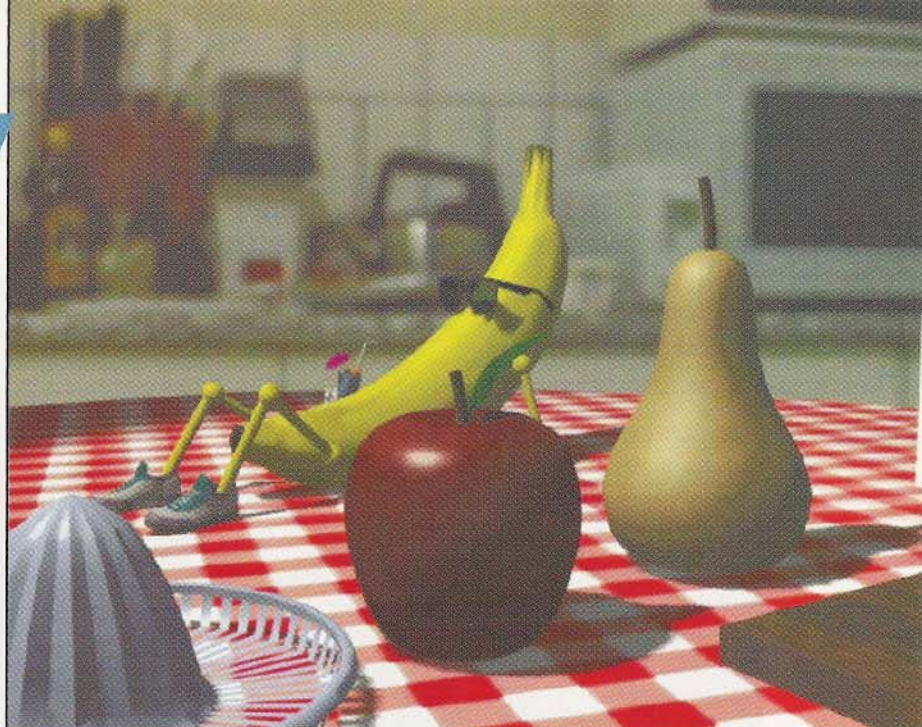
so on. It's rated at only 17 watts, and so you could probably do with a new supply.

To achieve this, you could get one of the purpose-made beefed up supplies which may be available in Australia by the time you read this (look for a review soon!), or you could rewire an inexpensive IBM clone power supply, as did the old A500 users who went to extra hardware. This course would be even easier than it was with the 500, since the CD32 only wants +5V, +12V and ground, with no negative voltages. A cheap old XT supply, with a lousy 150 watts, should do you nicely!

Overall, this is the first real CD32 expansion, and so things can only get better from here. But the SX-1 is good in its own right; only the price (variably small amounts less than \$500 depending on who you ask) might deter you. Once you've added, say, a 40Mb hard drive, 2Mb of RAM, a keyboard and a floppy drive, you will have spent the thick end of a thousand bucks. If you can afford it, though, the SX-1 gives you a great machine that'll really scare the pants off your Nintendo-owning friends!

The SX-1 is distributed in Australia by Peripheral World, on (03) 725 3233. RRP\$499.





Lightwave 3D

By Jarrod Pudsey

ID Much loved in the U.S. but handicapped by an expensive NTSC dongle called the Video Toaster, Newtek's Lightwave 3D rendering package receives little attention down here in Australia and in most of Europe, where PAL video is standard. Warm and Fuzzy Logic's Lightrave product emulates the Toaster, but images still have to be scaled up to our video resolutions and software interfaces are squashed by a quarter.

Now Lightwave exists as an entity of its own, complete with PAL interface and image resolutions, all set to catch a new wave of enthusiasts right across the planet.

Version 3.5 of Lightwave has been released in a slick new package. The bundle includes seven disks packed with over ten megabytes of software, scenes, surfaces, Postscript type 1 fonts, and over 70 objects. The price tag

of around \$800 may seem a bit steep, but it's much cheaper than the versions that come with hardware.

This release comes with its own dongle which plugs into the parallel port of the computer. Included in the box is the Lightwave 3D Essentials video from Desktop Images to help first time users to the program - but you need an NTSC playback VCR. The manual documents version 3.0 and is very thorough and well laid out. There are many tutorials included, from simple object selection in the modeler and moving through 3D space in the Layout interface to more complex operations.

There are also sections involving particular areas of the software or techniques used, like 3D fundamentals, mapping, using lights, achieving realism with texture mapping, fine tuning motion paths

and so on. A separate addendum book updates all the new features for version 3.5 of Lightwave. To find out about the new features in this update, check out the What's New section.

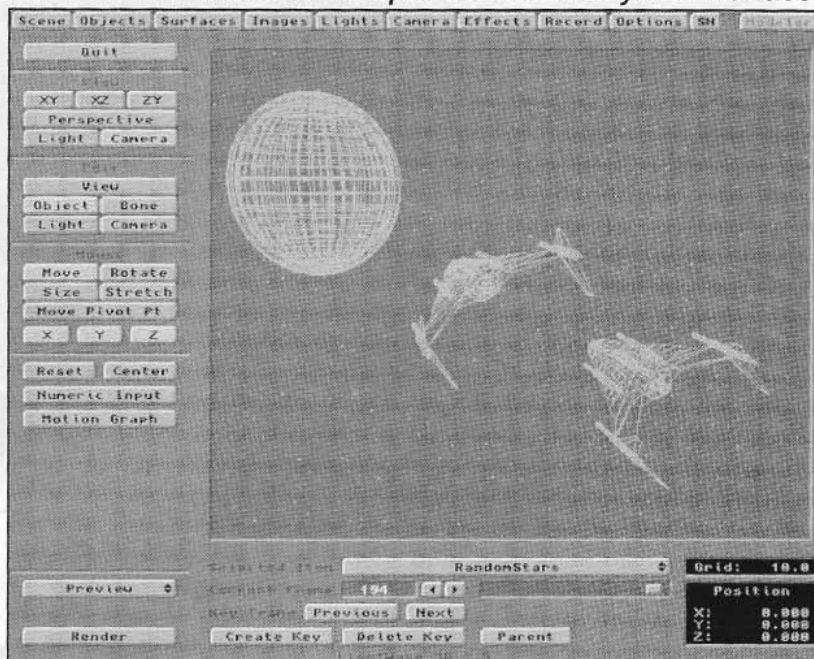
What's the fuss about?

Why is Lightwave used in Seaquest and Babylon 5, among other things? Why not use Real 3D? PC users think 3D Studio is so good, so why didn't they use that (actually, some PC users do think 3D Studio was used)?

It could be because the Toaster is a cheap desktop solution for video professionals, so Lightwave is designed with this in mind. The video technology of the Amiga itself is very affordable and well supported, especially in the US, and Lightwave is a fast and efficient video tool. Most of all, Lightwave is easy to use.



A view into 3D space with the Layout interface.



The Software

There are two programs in the package, Lightwave and Modeler. Lightwave brings up what's called the Layout interface. This is the stage where all objects, lights, and the camera come together in one scene for rendering. Surface characteristics are also created in the Layout. From here the Modeler program can be invoked, which is where object creation and modification takes place.

The Layout is a view into 3D space and can be seen from the front, top, or side, from a perspective view, a view from the selected lightsource, or from the camera. Motion of objects, lights and the camera is done using keyframe animation. Objects in a scene can be substituted for other objects to make animation simpler.

Objects can also be animated using hierarchical skeletons, creating fluid bending, as well as morphing for transitions from one shape to another. Motion paths can be fine tuned using a graphical interface displaying the various keyframes and the selected x,y or z position, scale, rotation or velocity.

Keyframes can be raised or lowered with the mouse to alter the values at that point, or dragged sideways to increase or decrease the number of frames between keyframes, altering the shape of the graph and the resulting motion. Motions can be saved and reloaded for other objects. Ranges of frames can be shifted or scaled or new frames added to the end of existing ranges.

Objects can align to paths and anticipate changes in direction. Keyframe positions can even be further fine tuned using spline controls to ease motion in or out, over or under compensate the evenness of path curves through the keypoint, alter the continuity of motion or just create constant velocities with linear motion. Objects within the scene can be moved, rotated, scaled, stretched, have their rotation point move and be parented to other objects. The lights and camera can also be parented to objects or have objects as targets.

Quick preview animations can be made in the Layout in a wireframe or bounding box display.

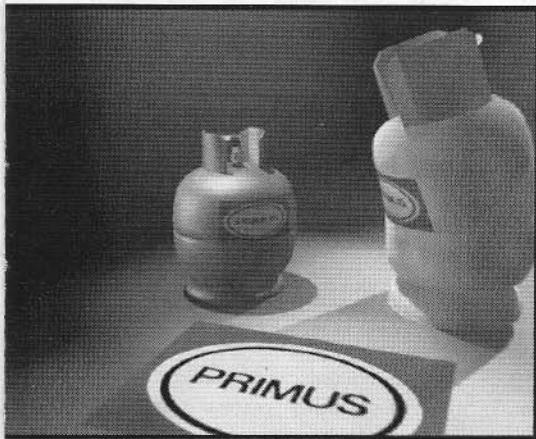
Using a VCR style panel, they can then be played back at various rates up to 25 frames per second. When booting with an NTSC display, Lightwave will make the Layout default to this, allowing a 30fps rate and 24fps for film. Previously made previews can be displayed in the Layout as backgrounds as well, to assist in modelling.

As well as the objects, lights and the camera being able to be animated, almost all values in the Layout can be animated over time using the envelope graph. This interface is the same as that to control and fine tune motion. With this such values as object dissolve, polygon size, light intensity, zoom factor, focal length, fog distances and amounts, metamorph levels and lens flare intensity can be altered over time.

Surface attributes for objects include Colour, Luminosity, Diffuse level, Specular level, Reflectivity and Transparency, with corresponding texture mapping. Textures can be IFF images or sequences of images with the ability to loop a specified range. Each texture map includes falloff values, velocity, planar, cylindrical, spherical, cubic or front projection mapping, and multiple procedural textures like fractal noise, underwater and marble.

Other surface features that can also be applied are bump mapping, surface morphing, clip mapping for cutting away portions of an object, and displacement mapping to shift the height of polygons on an object, useful for making waving flags and rippling water.

Camera and lighting effects in Lightwave can create stunning results with very little effort. The most popular effect would have to be Lens Flare. This feature simulates what most cinematographers class as an error in photography, but which in computer graphics



can add to the realism of your work. There is a warning, however, as this feature can become very addictive and, heaven forbid, monotonous. The manual therefore stresses that this lens flare be used in moderation - but what do they know?

Lighting in the scene can be distant, a radial point or a spotlight with adjustable cone angles. Shadows can be raytraced, turned off or calculated as a shadow map for spotlights, giving softer edges and quicker rendering. Objects themselves can be optimised to handle whether they cast, receive or self shadow.

Lightwave renders a scene by raytracing and can selectively have raytrace reflections, refractions and shadows turned off as well as wireframe and quickshade rendering. Image rendering can now be done in PAL resolutions as well as custom sizes up to 16000 pixels square. Images can also be rendered in Square Pixel aspect ratio for print material. Image resolution presets are Super low (1/4), Low (1/2), Medium (video), High (x2) and Print (x4).

Images can be saved as 24bit, HAM or HAM8 and anim files can be created in 6 and 8 bit HAM. When rendering, the image can be displayed in HAM, HAM8 and to custom display devices. At present the only device supported is the

Picasso II, but this section is modular and can be updated.

The antialiasing features provide faster Adaptive Sampling as an edge detection with a definable threshold between the values in neighbouring pixels. Soft filter provides smoother, film like edges around objects, and all antialiasing settings are adjustable from low to high to create superb quality in the rendered images.

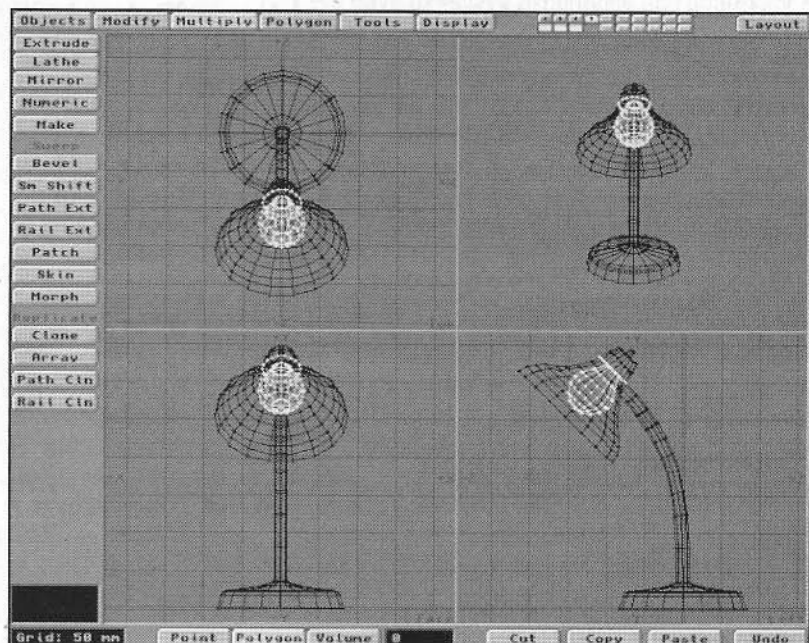
Other rendering effects that can be created are motion blur, depth of field, colour cycling, background images and gradients, field rendering, fog, limited region, alpha channel and particle blur for streaking point objects. Multiple camera presets are also available with their corresponding lens diameter and adjustable focal lengths for different depth of field effects. Presets include Super 8, 16/35/Panavision/Imax film, 110 pocket camera, 35mm SLR and 1/2" CCD video.

Modelling

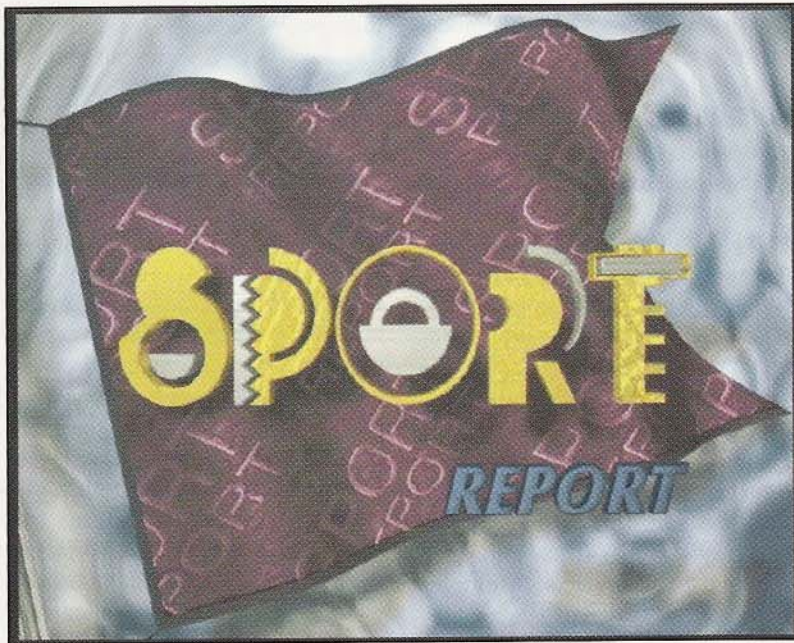
The Lightwave modeler uses the quad view interface for object creation in Front, Top, Side and Perspective. Movement through

these views is very free and easy. The perspective view can show a static image of the object in wireframe or solid, as well as a dynamic view that rocks the object back and forth. This gives greater object perception and helps to remove 3D ambiguity. The visual display of points, polygons and curves can be turned on or off to assist modelling. Ten layers can be used to store different objects or parts of objects, and any number of these can be viewed at the same time or as backdrops. These levels can then be saved as one object or one group of objects. Objects can also be imported and exported to the current scene in the Layout for quick addition or modification.

The selection and deselection of points and polygons for modification can be done in a variety of ways for best efficiency. Points can be selected using the mouse in all four views by clicking, dragging a lasso, using a volume or according to the number of polygons they share. Polygons can be selected the same way, including the number of sides they have, the surface name applied to them or if they are non-planar.



The Modeler quad view interface.



Other features that assist modelling include autofitting views to selected objects, measuring lines dragged with the mouse like a tape measure, displaying background images, constant coordinate and numerical value displays, hide and unhide options, invert item selection, selection of surrounding points or polys connected to original ones, and info on individual points or polygons.

Throughout both the Modeler and the Layout interface, keyboard shortcuts can be displayed by pressing the Help key. These keyboard command displays are configured according to the current menu being used in a particular interface.

Objects can be created using primitives. These are ball, box, disc, cone, or freehand curve. Lightwave includes curves which behave like splines for creating smooth freeform surfaces that then convert into polygons. Fonts can be loaded for creating text objects. Other object creation tools include the usual extrude, lathe and mirror as well as extrude along a curve, along a motion path, bevel, patch 3

or 4 joined curves with a freeform surface like a ship's sail, skin the surface of selected polygon sections, morph which is like skin but creates transition sections, clone, clone array, clone along a curve or along a motion path and then there is always the option of building point by point with lines, polygons and curves.

Drill operations can be used to cut surfaces of objects in interesting ways. Using a 2D object as the drill template, it is projected through the object on a specified axis and wherever it cuts the surface of this object it can be made to do one of four things. Core keeps only the surface of the object cut that's within the area of the template. Tunnel does the opposite and deletes this area of surface from the object. Slice does not remove any surface, but creates new polygon outlines on the surface of the object where the template projected through.

Stencil is the same as slice, except these new polygons have a definable new surface attribute name applied to them. S Drill is the same as the other but instead

3D objects are used as the template. In this case it is the intersecting surface between the two objects that is kept, removed or stencilled on the surface of the target object. These functions should not be confused with Boolean operations, as they treat the object as a thin surface and just serve to cut pieces of this away, leaving a hollow object.

Boolean operations or CSG (Constructive Solid Geometry) treat objects as solid shapes so when one object is used to cut away a section of another, it leaves an inner surface where that section was removed. The choices for Boolean operations in Lightwave are fairly self explanatory. Union joins two objects into one, Intersect makes an object out of the common area of two overlapping objects, Subtract deletes the section of an object from the corresponding shape of the overlapping object, and Add is similar to Union except that it retains the internal overlapping surfaces.

Features for object modification include Move, Rotate, Size, Drag, Stretch, Shear, Twist, Taper, Bend, Magnet, Pole 1 (a size tool which affects a bounded area), Pole 2 (the same thing, but a stretch tool), Polygon Subdivide, Unify all double sided polygons into single sided, Jitter to randomly move positions of points for jagged surfaces, and Smooth for the exact opposite.

A new form of subdivide called Metaform has been added in this version of Lightwave. This attempts to make an object's lines smoother and more rounded. According to the Addendum, it simulates modelling with Metaballs. An example is a cube shape. With repeated Metaform operations, the object will begin turning into a sphere. If the cube is already subdivided several times and then Metaform subdivided, the sharp

edges of the cube will be rounded off, leaving a sort of dice shape.

So there it is!

That about covers most of the features of Lightwave 3D. There are third party programs that allow Lightwave to create proper particle animation with flocks of objects or Newtonian physics animations with collision detection and forces. These work by importing the objects into them, setting up the animation, calculating all the keyframes and importing this back into Lightwave. The programs that do this are called Sparks, Dynamic Motion Module and Newton's Laws.

With the impressive credits already behind it Lightwave is sure to go through more improvements. It's already widely accepted in the US, and support should now continue to grow worldwide. The change from version 3.0 to 3.5 didn't take long, so Newtek seem keen to keep improving their product, especially with its growing popularity in the professional entertainment industry. One thing that could be added is Inverse Kinematics to help with skeleton animation. Perhaps future versions will include the particle animation features found in the third party software. If, however, large rendering engines like the Raptor will make it to the popular market, we have yet to see what this software really can do.

What's New?

For users familiar with versions 3.0 and 3D 4000 of Lightwave, let's look at some of the new features found in this 3.5 package. Firstly, and most important, is the "No Toaster Required" dongle which plugs into the parallel port. The Layout and Modeler screens are now in PAL, which takes a little getting used to after working

in NTSC. It seems like buttons are missing due to the extra space on screen.

Overall changes in the Layout screen are mini slider buttons on most options for changing values with the mouse. Wherever an image is selected for an effect or texture, a thumbnail picture is displayed of that selected image. There are two new procedural textures, Bump Array and Crust. Surfaces and texture values now allow a range of -399 to 400, except things such as bump heights, which have no limit. When in Camera Edit mode, the camera displays field of view lines that adjust with zoom settings. The Preview anim now stays resident in memory until Free Preview is selected. This means menus can be opened and even new scenes loaded, and the preview will still be there.

One unfortunate removal from this pop-up requester is the Load and Save Preview functions, especially when a new Preview anim backdrop function has been added to the options menu. The rates at which the preview plays have been changed to suit PAL users. The new rates are now 25/20/12.5/8.3/5/2.5 frames per

second.

In the Scene menu, the number of polygons in the scene is now shown. The scene overview column has been changed to show little icons of the camera, lights and objects instead of C, L and O. Included is a new column showing the status of the actors. When you blank the lights, camera and objects will show up invisible in the layout. Clicking with the mouse button toggles the status.

For lights and the camera, a tick indicates that it is visible. Objects within a scene can be displayed as visible or invisible, as well as bounding box, points only or alternate polygons. This is ideal for cutting down the amount of data on screen when working or making preview wireframe animations.

The Objects menu now has an Add Null Object button and the ability to rename it. It is also visible in the view as a 3D crosshair instead of a single point and is resizable for even better visibility. Object Skeletons has the great improvement of being able to add a child bone. This automatically places the child at the end of an existing selected bone. Particle line size can now be used to alter



The new Camera menu.

The Effects menu.



the thickness of rendered particle trails. The options are Auto, Small, Medium, or Large. One small change to the Surfaces menu is the ability to list the surfaces using the Alphabetize button.

A light's lens flare can fade with distance. This effect is used to increase or decrease the brightness and size of the flare from a specified nominal distance away from the camera and be independent of the flare intensity values. This function can be controlled with an envelope. Flare Dissolve can now also be controlled with an envelope.

The Camera menu now shows the Limited Region size and the Pixel Aspect and Frame Aspect ratio. The selectable aspect ratios now include Abekas/D1 PAL and D2 PAL. Programmable resolutions are now possible with the Custom Size button. Segment Memory replaces the Use Fewer Segments option. This allows the user to allocate an amount of free memory to assist rendering. The more RAM assigned, the fewer segments there are, and a slightly quicker rendering time is achieved. Motion Blur needs only low antialiasing and above to operate.

Field rendering has a Reverse Fields option, which fixes the problem for some displays which shift images and flip their field data.

Effects menu changes include a new type of fog, Nonlinear 2, which simulates a more realistic fog effect. A new fog graph has been included to display the fog intensity over distance.

A Data Overlay up to 19 characters long and the current frame number can be added to frames when recorded. This can be useful for identifying the images. Render Display can render the image to the Toaster framebuffer as before, as well as the option of No Display, HAM, HAM8 and third party display devices. The Picasso II is the only board supported at this time, but this section of Lightwave is modular, allowing other companies to write drivers for their products. Anims can be recorded when rendering in displays of HAM and HAM 8. These can then be played in such programs as Deluxe Paint. Images can be saved as 24 bit IFF, RAW, TARGA or HAM and HAM8. Alpha channel images can be saved as 8 or 24 bit.

In the options menu, the layout interface resolution can be changed to suit different monitors and displays, the largest being 1024 x 768, ideal for high resolution display boards. The Layout grid can be increased to 16 x 16 units. The Layout background can be blank, show a backdrop image and now display the current frame of the preview animation in memory as a background.

This is good for making the motion of an object in relation to a complex scene and then using Load Objects From Scene to add it in. Auto key adjust instantly updates a keyframe when an object at that frame is altered.

A new menu has appeared called SN (Screamer Net). This allows rendering to be farmed out to a MIPS based, Windows NT network with up to 8 processors. This requires Newtek's software and an Ethernet card for running such beltingly quick things as the RAPTOR.

Modeler changes

First is the new 10 layers to work in instead of eight. The undo feature now returns back to an undone process with the objects used still selected. Subdivide has a Fractal Parameter which is similar to performing Jitter. A new type of subdivision exists called Metaform. This function rounds off the edges of objects creating smoother shapes.

The Display menu has an Invert button, which toggles the currently selected and deselected items back and forth. There are also new Hide and Unhide functions for selected points and polygons.

Apology

Last month we ran the Ray-tracing column as being written by Bruce Brown. Sorry Jarrod, this time we got it right!

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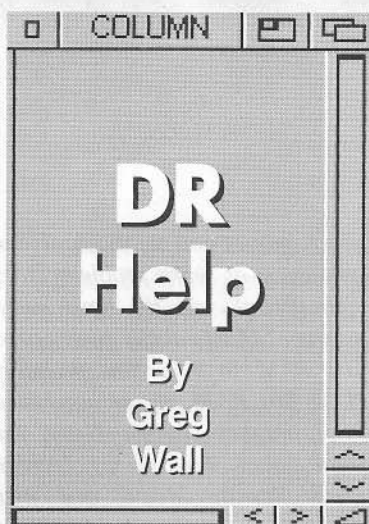
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Bootable Disks

Dear Helpline, I'm writing to ACAR to see if you can answer some questions which were not detailed in the instructions for these software packages.

In AMOS version 1.2, the manual did not explain how to create a self booting program, or how to write it to disk and make it an autoboot disk. I am a subscriber to your magazine and find it very informative and it is a great read! Keep up the good work, and I hope you can help me with this.

Alex Quaglia,
Malabar NSW

A.C.A.R: Thanks for your positive feedback - now on to your problem.

Setting up a disk to autoboot is not that difficult once you know how, and it's even easier if you have an external disk drive. Load up your system from Workbench or HardDrive and double click on Shell to open a shell window.

Insert a formatted disk in DF0: or DF1: and select the shell window to make it active. Type in "Install DF0:" or "Install DF1:" depending on which drive the

blank disk is in, and press return. Make sure you include the colon. Type in Endcli to close the shell window. Workbench 2 or higher users can just click on the close gadget on the window.

Presto, you now have a bootable disk. If you reboot the computer with this disk in DF0: not much will happen, because there is nothing on the disk yet. It will boot into a CLI window and stop.

Now you need to add some instructions for the disk to carry out. When a disk is booted the computer looks for an S directory, opens it and looks for a file in there called startup-sequence. The startup-sequence is a list of instructions to be run first and tells the computer what you want to do.

To create a S directory, from the shell window again type in "Makedir DF0:s" and press return. Don't forget if you have your blank disk in DF1: to change it to "Makedir DF1:s". Now type in "ED DF0:s/startup-sequence" and press return.

You should be looking at a blank window ready for you to type information into.

If all has gone well your startup-sequence has been created. Now type in "RAMOS Filename", where Filename is the name of your program file. To exit and save your new startup-sequence you need to hit the escape key once and then press X and press return to save the changes.

Copy across all of your files from the program you have written, including the Ramos

FilePlayer. Assuming that the file you have written works and has been checked with the environment checker, you should be able to boot from this disk and have the program run.

This should at least get your program up and running on a bootable disk, there are a lot of other things that can be added to the disk, but this is the skeleton of what you need. Good luck with your programming.

Game Installation

Dear HelpLine, I am an elderly computer illiterate with an A2000 which I bought for the purpose of polishing up the titles for my video hobby, which with the help of DPaintIV it does brilliantly.

I recently succumbed to the pleas of the grandkids and purchased ACAR PD Games 1 & 2 and would like to put them on the hard drive, but have not a clue!

Could you please take me through the procedure step by step? The computer has a Maxtor 60Mb hard drive and is hooked up to an Electronic Design Y/C Genlock, Videonics Video Equalizer and Panasonic FS90 VCR. I am using Workbench 1.3.

Mr W.J. Lindsay.
Ningi QLD

A.C.A.R: Let's first look at PD Games Disk 1. It's probably easier for you if you're not too confident on the Amiga to just run them off the disk, as there is going to be a bit of work with the CLI or shell. For the purpose of this experi-



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ment, though, let's carry on.

First, boot up your computer in the normal way and insert Games 1 disk in DF0:. Assuming you have two partitions on your hard drive, DH0: and DH1:, double click on DH1: to open it up, and create a drawer called Games. To do this under 1.3 you will need to select the Empty drawer and use duplicate from the pulldown menu. Then rename the "copy of Empty" to Games.

Now double click on shell to open a CLI window and type in "copy DF0: DH1:Games all" and press return. Next type in "cd games" and press return. Type in "Copy libs/explode.library libs:" and return. Then "copy c/fullview c:" and return. Next you want to delete the drawers copied over from DF0: that are not needed. Making sure that you are in the Games drawer by typing "cd DH1:Games". Next type in the following commands, "delete c all", "delete devs all", "delete l all", "delete libs all" and finally "delete S all".

One of the games needs an assign to run, so you will need to edit the startup-sequence (user-startup on WB2 or higher). From the shell, type in "ed s:startup-sequence" and press return. Before the endcli command, add the line "Assign Downhill_Challenge:DH1Games", and to close it down and save changes press escape then the letter "X" and return.

Now reboot your computer and double click on the shell window. From now on when you want to run any of the games open a shell

and type in "cd DH1:games", then a number from 1 to 7 depending on the game you want to play.

1=AirAce, 2=Humartia, 3=Missile Command, 4=Car, 5=Downhill Challenge, 6=Biplane and finally 7=Running.

You could set it up to run from icons by creating some, but it is much more fooling around and this is getting longwinded already. Disk two needs to be set up similarly, perhaps by setting up a drawer called Games2. The main thing is copying across files from the disk that are not on your hard drive into their relevant places on your workbench partition.

NOT a games machine!

Dear Helpline, Being the proud owner of an Amiga 1200, I was horrified to find after 6 months I have difficulty trying to play games, simple ones like Pool, or Golf or Darts.

The problem is when you start the game (selected from the menu) it starts automatically and you have no control at all. In the case of Golf once you strike the ball it disappears. So you can see it is not true that Amigas are only games computers (as I have been told many times), as this is the only thing I can't do. Is there anyone out there who can cast some light on the problem? I can play the same disks on another 1200 perfectly!

**Peter Francis,
Burrum Heads QLD**

A.C.A.R: Not knowing exactly

which games you are using, I can only guess as to the problem. Does your friend's A1200 have extra memory? Maybe these games need fast RAM to run. You probably HAD fast RAM, if you upgraded from another Amiga. Have you tried going through the "Amiga Early Startup Menu" and then running the games? Have you tried using "Make it work" or "Degrader"? Have you tried reinstalling the system software to make sure there aren't any files missing off your system (provided the games are on your hard drive)?

There is, of course, the possibility that something is wrong with your 1200 that needs to be looked at. Also, if you have an accelerator, it may be creating problems. If anyone else has had similar problems or further suggestions, drop us a line marked "Attn Helpline".

Plug in danger?

Dear Helpline, all the manuals for my computer gear tell me everything has to be turned off when interface cables are plugged in or removed. I've absentmindedly unplugged my printer a couple of times while both the printer and the computer were on, with no ill effects; is there really any danger?

**Joe Rosendale,
Lucas Heights NSW**

A.C.A.R. Indeed it is possible to damage your computer by plugging things in with it on. Essentially, the danger lies in some pins of the connector making contact slightly before others,



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allowing electricity to flow where it shouldn't and, typically, frying one of your two Complex Interface Adaptor (CIA) chips.

It can also do nasty things like blowing solid state fuses on the motherboard which don't impede the performance of a printer at all, but could bring any digitising you plan to do to a sudden halt, because the parallel port's power supply lines are dead.

We've connected and disconnected things more times than we can remember, and some of those times have been with the power on, and some of those events resulted in brain damaged computers. The chance of damage is not very high, but that's no reason to do it. Power down first.

Processor permutations

Dear Helpline, could you tell me what the different Amiga processors are? I can't make sense of the mess of processors, coprocessors, clock speeds, Memory Management Units (by the way, what are they?), coprocessors, caches... help!

**Pete Parker,
Kaleen ACT**

A.C.A.R. Motorola have certainly made a fair few processors in the Amiga's 680x0 range - but look on the bright side, the PC world is even worse!

Starting at the bottom, there's the 68000, as seen in the A1000, A500, A2000 and CDTV. In 1979 this was the equivalent of today's PowerPC or 68040.

The 68010 came shortly afterwards, a little faster and slightly incompatible. Next was the confusingly titled 68070, which is an 010 with a Memory Management Unit (MMU, we'll get to these in a moment). If you've ever seen an 070, you're one up on us.

The Great Leap Forward was the 68020, which drives the old A2500, and the new A1200 and CD32. Then came the 68030, faster still, which you'll find in the A4000/030 and A3000.

The 68040 is the fastest Motorola processor commonly available today, and ships in the A4000/040. The 68060 is the last in the 680x0 series, clocking in at around four times even the mighty 040's speed, and this beast is slated to inhabit the high end AAA machine when it's released.

Memory Management Units are subsidiary chips, included in the more powerful processors. They're no use for most Amiga owners, but let you do things like virtual memory (hard disk used like RAM) and complex debugging.

Math coprocessors, which are also included in the more ferocious processors, do floating point mathematics much faster than the standard CPU and are hence useful for 3D rendering and other intensive number crunching. They only do anything if the software specifically supports them, though.

The 68000 and 68020 don't have a coprocessor or an MMU; you need to buy the 68851 MMU or 68881 or 68882 coprocessors if you want one. The 68882 is the same as the 68881, only considerably quicker.

The 68030 includes an MMU, but no coprocessor. The 68040 and 68060 both have MMU and coprocessor built in.

Irritatingly, there are also cheap EC versions of the 020, 030 and 040 chips. The A1200 has a 68EC020, which can address less total RAM (this means virtually nothing to Amiga owners). The 68EC030, which appears on various third party accelerator boards and later model A4000/030s, has no MMU. The 68EC040, which is

in later 4000/040s, has no MMU or coprocessor.

There are also different clock ratings for just about all the chips. Technically, a chip can safely be run at anything up to its rated clock speed, although for reliability some boards run, say, a 50MHz 030 at only 40MHz.

CHALLENGE CORNER

Dear Helpline, HELP!

I have a small problem which everyone tells me is a big problem with no solution.

What I want to do is transfer my A3000 images from Amiga to a VCR, then play it back to my 1960 monitor like I have done in the past with my A500 and 1084s using the A520 RF Modulator. At the moment the 1960 is connected to the 15 pin male on the 3000 and I have connected the A520 to the 23 pin RGB port, so getting the image to the VCR is easy.

Playing the image back on the 1960, though, seems to be impossible. Looking at the back of the 1960 is like the movie "The man with no face" - there's no input or output devices except for one cable. If anyone has any suggestions could you please help me?

**Steven Coutts,
Narara NSW**

A.C.A.R.: It does sound a bit like an impossible mission, unless you've got a soldering iron and some spare parts. Maybe the easiest answer would be to buy a second hand 1084S, or a small TV.

If anyone has any suggestions we would love to hear from you - mark your letter "Attn Helpline".

□

Why not to buy an IBM

First of all I'd like to say what a great mag you have. ACAR is extremely readable - even the ads are good!

A couple of months ago I made the stupid mistake of buying a 486 PC instead of the Amiga 1200, which is now in short supply. If someone tries to tell you that a PC is better than an Amiga, just laugh and walk away. Sure, a 486 is usually faster than a 1200 and has more and prettier games (at present), but it has the most hostile environment I have ever used. I had more problems in a month of PC use than I had in three years on the A500.

My error of judgement will be rectified as soon as I receive a refund; after going through three motherboards it gets beyond a joke. Enough negative thoughts. I'd like to use my A1200 as a career option in graphics (animation rendering); where would be the best place to start? Thank you very much and keep up the good work.

Tomas Kis, Chatswood NSW

Ed: We produce both Amiga and PC Review magazines, so we should know - and we agree with you; the Amiga is much easier to deal with than the PC. There's no magic involved here; the Amiga's got one integrated operating system and uniform, predictable hardware.

PCs have three common flavours of DOS that are largely but not completely compatible, various versions of Windows, umpteen sound, graphics and disk controller cards all with their own drivers, and the whole thing's built on a platform that was the state of the art when John Lennon was still alive. IBM compatibles are something of a dancing bear - the wonder is not how gracefully they dance, but that they dance at all.

All this could change with the advent of Chicago and the accompanying new "plug and play" architecture - touted as a huge innovation, heh heh - but that won't make the old machines any better. It's a shame that there's so much nifty

software for the platform; the system itself lacks anything vaguely resembling elegance.

Dead joypad

Great mag - well done! I have a very simple problem. The control pad for my CD32 broke. I took it back to Brashs, who replaced it with an obviously used one from a demo model; this was the only one they had, and I settled for it since Commodore don't exist in Australia any more, and a completely new one would break in time anyway.

Now the familiar rattle of broken plastic tells me this one's on the way out, too, and I need another new one. Where can I get a CD32 compatible joypad?

Also, it's annoying that there is no news of a CD32 compatible keyboard (unless you own an A4000) and/or docking bay. I want one and I want one now! Any news? Why has Commodore not had any A1200 or A4000 adverts since the September 1993 issue, and no ads at all since the CD32 ad in the March 1994 issue?

Last but not least - when will the Amiga Annual 1994 be published and available? I want a copy!

Scott Hudson, Brighton SA

Ed: CD32 joypads aren't too hard to find, and there's also a more durable Competition Pro model which we will shortly be reviewing. The regular model sells for \$39, the tough one's \$49, both from Computer Affair on (02) 417 5155.

Likewise, you don't need an A4000 to get a 4000 keyboard - though they're harder to find than joypads. Troll around the dealers. And if you want a docking station, check out our review of the SX-1 this issue; plug in a floppy drive, hard drive, IBM keyboard, extra RAM, you name it...!

As Commodore ran out of money, they cut back their advertising; the ads died completely in March, as did Commodore!

And there's a simple answer to when the 1994 Annual will be coming out - never. All of the old Annuals were partly bankrolled by Commodore, and they're not here to do it any more. If CBM UK's bid for the Amiga is successful, as they seem confident it will be, then the Annual could well be back - but not this year.

AAA Questions

One day my friend (an IBM lover) was looking at my June '94 ACAR. He was reading aloud the advantages of the new AAA Amiga.

It says that AAA will have eight voices of sound. That's pretty poor! I own an A500 and have had 16 voices running through Octamed! Why has the AAA architecture got less? And why does it have a sound card? The A500 doesn't have one!

Daryl Misiak, Morphett Vale SA

Ed: Indeed, the AAA architecture is slated to have eight voices, up from the four of every other Amiga. When Octamed does more than four voices, it does it with real time mixing, where two or more channels of sound get mixed together and output on one hardware channel. This is the same technique used by IBM compatible machines with fewer than four digitised sound channels to play Amiga music MODs with four tracks.

The trouble with mixing is it sucks CPU power and doesn't sound that great. Having a distinct channel for every sound you're playing at once is a much more elegant solution.

And it would certainly be silly if the AAA architecture needed a sound card, when it could all be built in and take up no slots. Fortunately, it doesn't; we were talking about the number of gizmos you'd need to plug into an IBM to bring it up to AAA specifications.

Support starvation

It's getting very tough to find a store that stocks anything Amiga related. I am extremely concerned at the situation. In most of the major computer stores, they sell IBM computers and software.

Also, my bubble jet printer (BJ10ex) isn't working properly in graphics mode. Do I need a specific driver?

And what happened to PCMCIA drive technology? Is Commodore, or any other company, using this?

I'm also interested in getting a modem. What type do I get? Are they expensive and/or difficult to use?

Kari Sinkko, Woodridge Qld

Ed: The major retailers aren't particularly interested in stocking Amiga computers or software; you can't blame them, since the machine's not presently being made. This should change with the recreation of Commodore. In the meantime, Amiga Review has plenty of ads from Amiga dealers; whatever you need, you can likely find it in these pages!

You do need a special driver for the Canon; it's called Canon Print Studio. Get it from any good PD libraries.

PCMCIA hard drives exist, but the ones that plug straight into the PCMCIA slot are still too big to fit in the little Type 1 slot in the 600 and 1200. No great loss, since PCMCIA hard drives are considerably more expensive than even the baby 2.5 inch IDE devices that inhabit these machines by default. The other sort of PCMCIA "drive", the battery backed rewritable RAM card, will work with your 600. These, though, are outrageously expensive for the amount of storage they offer.

Which modem you should get depends on your needs, and your means. Fast 14,400 baud fax modems are pretty much the standard these days, and they're coming down in price; \$399 is the price point the bulk of manufacturers are now settling on.

Faster modems, which do 28,800

baud, still aren't common enough for them to be a good idea for the average user. If you're strapped for cash, a cheap second hand 9,600 or even 2,400 baud modem could fit the bill. And yes, they can be a fiddle to set up, before you even start figuring out bulletin boards. For a complete guide to modems for beginners, check out our May edition.

Power DOS garble

Please make out the jumble on the attached sheet for me. Thanks. [along with this fax came page 76 of the last mag, page one of Power AmigaDOS].

Gerard Thomas

Ed: Sorry about that, folks. The article was talking about CShell's ability to complete long filenames with the tap of a Tab key, and for an example a very, very long silly example file name was included.

Unfortunately, Professional Page had a religious difference with this long filename and spat the dummy into the next postcode. Don't worry about what the line said - it was just an example.

Retina driver

I just bought a second hand Retina card and need to get the latest driver software. Can you tell me the name and address of the Australian distributor?

Randal Reynoldson, Braidwood NSW

Ed: There's no official Australian distributor for the Retina. Fear not, however; try CPA on (02) 337 6255. That's where we got ours.

Shame shame shame

Shame on ACAR for ruining what I consider to be the best Amiga magazine going. Until July you had the perfect mix of news, business software reviews, games and game hints and tips. Now all you have it a boring collection of what I call "hard core" software reviews.

As a faithful A500 owner, I mainly use my computer for games, and colum-

ns like Adventurers Realm, Clever Contacts, Entertainment and The Dungeon are sorely missed.

As you quite correctly stated in your July edition, there are numerous British and European magazines covering Amiga games, but only about 50% of the games reviewed in magazines like Amiga Format ever reach Australia, so there is a real need for a quality Australian magazine to keep us up to date with what is happening here at home. That is what your magazine delivered up until a month or so ago.

I used to eagerly await my monthly delivery of your magazine, but I am afraid now I will be unlikely to renew my subscription next year. Don't bow to pressure from the high tech software users; there are still thousands of us A500 game players out here.

S. Spooner, Gympie NSW

Ed: In general, the feedback about the revamped ACAR has been overwhelmingly positive. We try to do what the majority wants, and in this case we seem to be doing it pretty well. Your vote is counted, of course; if we get enough letters begging for a larger games section, we'll consider it, but as it stands Adventurer's Realm and the Dungeon made way for our expanded coverage of less immediately amusing accessories.

At present, it'd be quite hard for us to do a lot of game reviews even if people were begging us for them, since review copies are hard to find. If a game's imported in small batches by a retailer, they're understandably unwilling to part with a copy they could sell right away, and you can count the big Amiga software distributors in Australia on the fingers of one hand and have a few fingers left.

Amiga Review's games section won't die - we still get a steady trickle of Amiga entertainment software - but we really feel the monster game mags fill the need for the abovementioned A500 gamers. If only they cost less!

□

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GVP Impact Vision 24 colour card, two splitter boxes, one suits delatcam. All cables and software and books (near new). Cost \$3900, sell for \$1500 (updating to opalvision etc). Dennis Young (075) 392156, 3 Numeralla ave Admore 4214 Gold Coast.

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Roctec expansion unit for A500 including 120 Mb harddisk and 2Mb RAM. \$420. Bankstown NSW. Call (02) 708 3443 after 5pm.

SCSI Hard Drives: 2 x 1.2Gb SCSI 8"full size hard drives. Built in 300W power supply. Good condition, only 6 months use. Includes controller and manuals. \$800 ono. Call Matt on (02) 980 8062 or 018 043 541

Sell or swap the following games: East Vs West Berlin 1948, Side show, Special Forces for \$15.00 each ono. Sim City, Amos-the creator, Jack Nicklaus' Unlimited Golf and course design for \$20.00 each ono. Search for the King, The God Father, Railroad Tycoon, Global Effect for \$25.00 each ono. I will sell the lot at \$170.00 ono. (Save \$35). The Games I'm willing to swap for are:- Leisure Suit Larry 5, Operation Stealth, Star Trek 25th Anniversary, Dune 2, Robocop 3, Curse of Enchantia, Black Sect. I can be contacted on (03) 357 3421 after 6pm .

Wanted for Amiga 500: 286 IBM board pay \$100, Hard disk around 40-50 Mb pay \$200 or trade my 500 in on your 2000 with the lot. Wanted, one copy of Pc Task. Call Peter 366 4726.

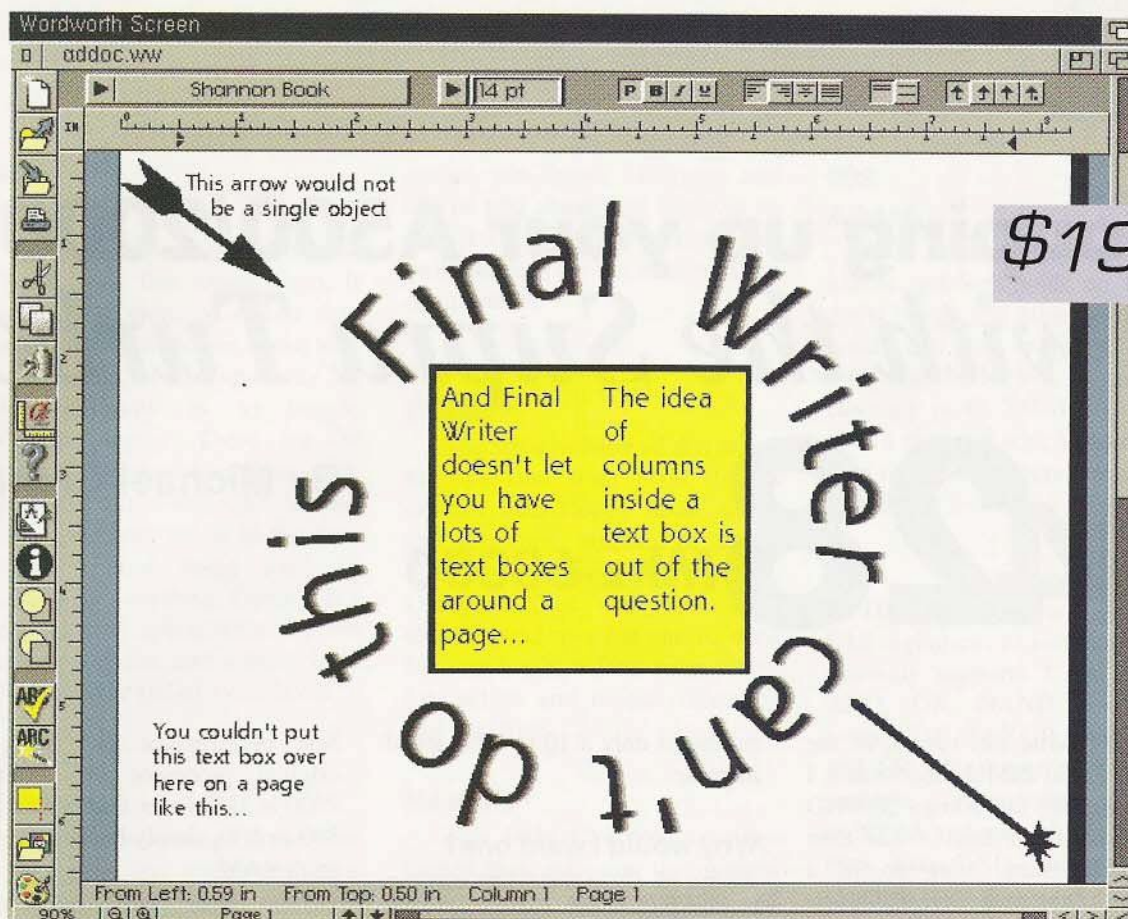
Wanted to buy! A hard disk controller to suit Amiga 500. Size is not a problem but nothing expensive. Will consider every offer. Please ring Carlos on (06) 266 6221 between 8.30am and 4.00pm .

Wanted- Blizzard turbo memory board for A500. Phone Peter Lawrence on (08) 278 5339.

Wanted: A570 CD-ROM titles for A500 to swap or buy. Write to Troy Bootsma, 5 Barrington st, Spearwood, WA, 6163. * All letters replied.

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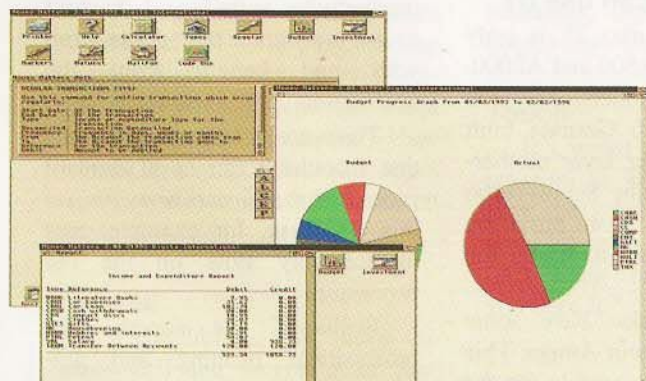


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Souping up your A500/2000 with the Supra Turbo

28MHz 68000

By Michael Granat

■ As I write this review of the Supra Turbo 28MHz accelerator, I am watching my Amiga 2000HD go much faster than it has ever gone. Programs start up in a quarter of the time. Screens of text on ProWrite redraw in the blink of an eye as I move from page to page.

My Workbench 2.1 screen saver has become hypnotic in its speed and smoothness and there have been unexpected benefits, which I will elaborate on later in this article. Yet at any time, I can return my Amiga to normal at the click of an on-screen button or the flick of a back panel switch.

So what is a Supra Turbo ?

The Supra Turbo contains a Motorola 68000 processor that is essentially identical to the original processor fitted to an Amiga 1000, 2000, 500 or 600, except that it runs at four times the 7MHz clock speed of that original processor.

It also includes a high speed static RAM cache that helps make the full speed capability of the chip available to a computer designed for a much slower processor. Without the RAM cache, the processor would only access the Amiga's memory at 7MHz, re-

sulting in only a 10 to 20% speed increase.

Why would I want one?

Speed. Everything that can run faster, does. Some programs, such as animations and games, will automatically regulate their speed, but they may run more smoothly with extra processing power.

The Supra Turbo will be especially useful to you if you:

- often run several programs at once
- need to print documents and keep working
- want to copy and format disks in the background
- work with large files
- work with graphics.

What Amigas can use it?

The Supra Turbo 28 is only available for the A500 and A2000. Of the A2000 models, only the very earliest 1986 German built models with a four layer motherboard cannot use the Supra Turbo 28, because there is no provision in that early machine to disable the processor.

You should also have some extra memory in your Amiga. This is important in any case to get the

best performance out of your original processor. My Amiga 2000 is 34% faster than a standard 500 or 600, simply because I have extra RAM.

To quote the Supra user manual, "In order to gain full speed benefit from the Supra Turbo 28, your Amiga must contain some expansion RAM in addition to chip RAM. Even with a small amount of expansion RAM, a sizeable speed boost will occur because most programs will load into expansion RAM and be available for caching."

What will run?

Because the Amiga sees the Supra Turbo 28 as just a 68000 processor, most programs run fine. In my collection of original productivity software, I haven't found a program that doesn't run with and benefit from the accelerator.

There are even some programs that I couldn't run on a standard processor that I can now run on this. PC-Task, for example, was unacceptably slow on the old processor.

Brilliance, the superb new professional painting and ani-



mation package, is tedious to run on a standard machine. With the Supra Turbo 28, functionality and speed are vastly improved.

What won't run with the accelerator is floppy disk based games designed for standard Amiga 500, 600 and 2000 machines. This is fixable in a second, however. Simply click the accelerator switch to its off position and reboot your Amiga.

How hard is it to install?

When I was a child, I used to dismantle my alarm clocks to see what made them tick. After their reassembly, they never did again. So I was not at all eager to pull my investment in business computing to pieces.

This considered, I found the accelerator very easy, if a little delicate to install in my 2000HD. I simply had to unplug the machine, remove its outer screws and cover and perform two tasks.

First, install the back panel switch in the processor slot hole, with a couple of the screws that hold in the panel plate concerned. Fine if you have them.

My 1988 German 2000HD comes with metal tongue depressors instead of screwed covers, so there are a lot of Austin 1800 self tapping screws in my Amiga.

Now gently insert the Supra board into the processor accelerator slot nearest the power supply and to its left (looking from the front of the machine - the slot on the right of the power supply is the video slot). A quarter to half hour task at most.

Be sure to read the Supra manual before doing this, and ground yourself so that you don't kill any chips with the static electricity on your body.

Now close the lid, screw it

down, put everything back and switch on your Amiga. Everything is faster - and gets faster still once the provided software is installed.

Now groan, as you start filling out the user registration card and realise that none of the packaging has the serial number for the accelerator - AND that the serial number is on the **UNDERSIDE** of the board, which means removing and installing it **AGAIN**. This I did, in no time, but it was an unnecessary nuisance that could have been solved by a serial number on the box and a one line instruction in the manual.

"Easy and cost effective acceleration for the Amiga 2000 and 500."

Fitting a Supra Turbo 28 to an Amiga 500 is a cinch. Turn the 500 off. Remove the plastic cover from the expansion slot on the left side of the machine. Plug in the accelerator. Turn on the computer. A half to one minute task.

There's software too

Supra include software with their Turbo 28 that optimises the RAM cache and provides the opportunity to switch the accelerator on and off, on screen, with the mouse.

It installs smoothly in moments from the provided floppy disk and copies your original startup-sequence to a renamed file, as a backup, before creating a new startup file that includes its own instructions and all of the original startup sequence.

Now reboot the Amiga for full 28MHz performance.

Advantages over bigger processors

All software designed for use with a standard 68000 Amiga runs with the Supra Turbo 28 installed. You can choose to have it on or off to suit the program. Unless the software you want to run needs a 68020 or higher processor, you should have no problem.

Unexpected Benefits

- **EVERYTHING** runs faster and smoother, even the animated, colour cycling screen saver provided with Workbench 2.1.

- My AMAX II+ Apple Macintosh emulator (previously more than twice the speed of a 68000 processor Mac) is now several times faster.

- Hard disk backups, using Quarterback 5.04 now take half the time. 400 kilobytes a minute instead of 200.

- PowerPacker now crunches most files so fast that I cannot read its percent crunched meter.

- Twice the processing speed of a stock standard 68020 EC processor Amiga 1200.

- 24% better performance than a fully ported and polished 68020 processed Amiga 2500.

- No need to buy hundreds of dollars worth of 32 bit wide RAM chips. (A requirement to get performance from a 68030 or higher processor.)

- Nearly four times the speed for less than \$350.

How much and where from?

If you live on the West coast of Australia, expect to pay around \$450.00. Fortunately, I live on the East coast and paid less than \$350.00 to the Software Buyers Service for the Amiga 2000 version, which is a card without a



custom casing, as in the Amiga 500 version. There might be a different price for the 500 version because of this.

Prices might also change due to Supra 28 Turbo availability and the US and Australian dollar exchange rates.

As you can tell, I have no regrets. Naturally, I should not recommend one dealer over another, so please check with your favourite Amiga retailers as well, to see if they have the Supra Turbo 28 in stock.

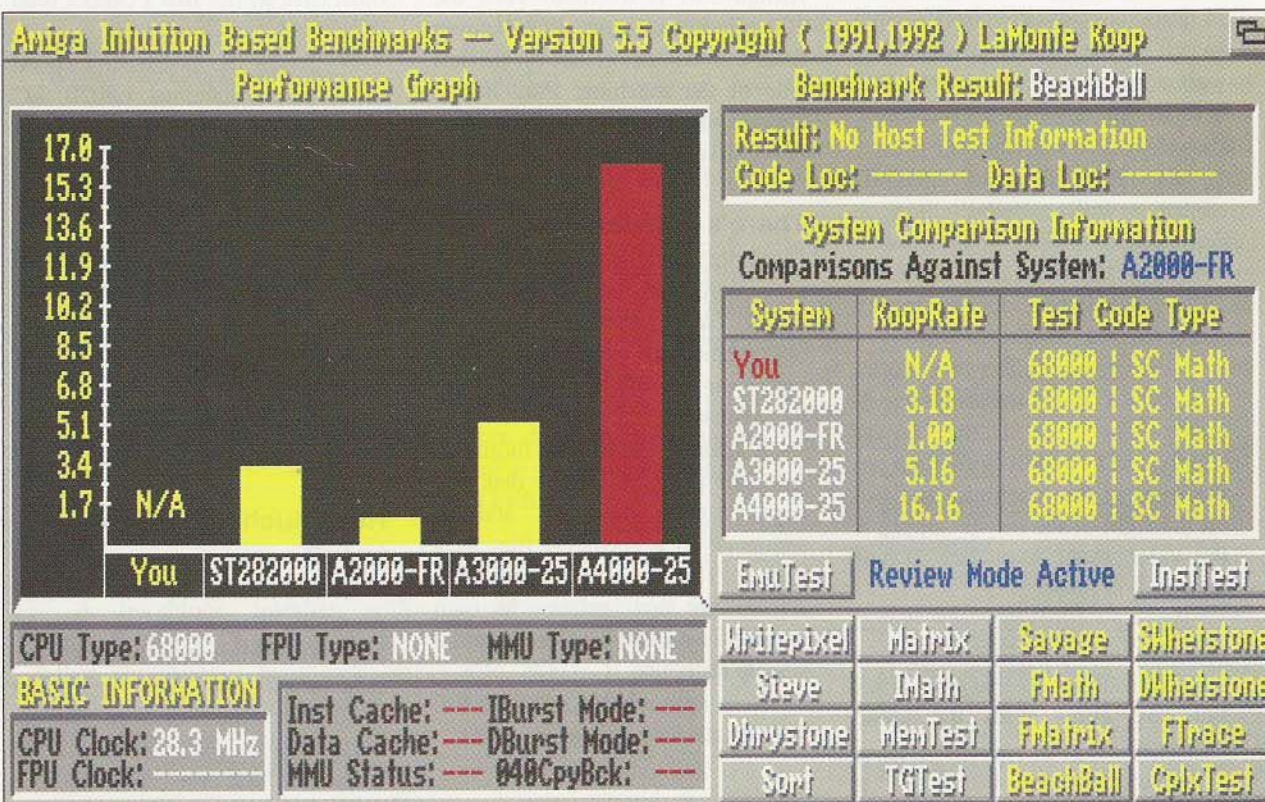
I can only say, however, that I am happy with the price I paid and that I am absolutely delighted with the performance increase. My 2000HD is now a ninth the speed of a 4000/040, instead of a thirty-third.

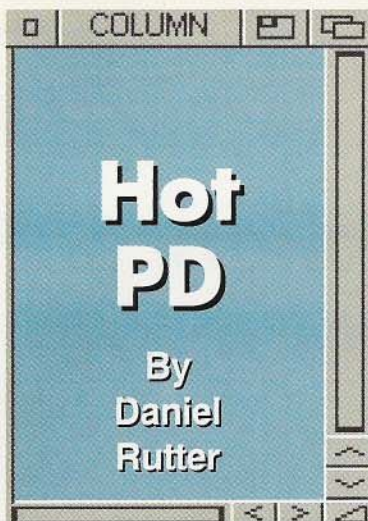
The Statistics

Courtesy of SysInfo V3.22 by Nic Wilson.

STANDARD 68000
PROCESSOR AMIGA 2000HD
A500 512k or A600 with 1MB
CHIP ONLY..... 1.34
B2000, A2000, A1000 or A500
with fast ram..... 1.00
A1200/14 68EC020 ICACHE
2MB CHIP ONLY..... 0.58
A2500/14 A2620 68020 card...
..... 0.34
A3000/25 68030 ICACHE
IBURST DCACHE NODBURST.
..... 0.15
A4000/25 68040 ICACHE
DCACHE COPYBACK..... 0.03
CPU Millions Instructions per
Second 0.74
Speed of Chip Memory vs A600
Chip Memory..... 1.25
Dhrystones per second..... 712

SUPRA TURBO 28 MHZ 68000
PROCESSOR AMIGA 2000HD
A500 512k or A600 with 1MB
CHIP ONLY..... 4.84
B2000, A2000, A1000 or A500
with fast ram..... 3.66
A1200/14 68EC020 ICACHE
2MB CHIP ONLY..... 2.10
A2500/14 A2620 68020
card..... 1.24
A3000/25 68030 ICACHE
IBURST DCACHE NODBURST.
..... 0.55
A4000/25 68040 ICACHE
DCACHE COPYBACK..... 0.14
CPU Million Instructions per
Second..... 2.67
Speed of Chip Memory vs A600
Chip Memory..... 2.11
Dhrystones per second..... 2561





► This is going to be the last of the diskwise Fish highlight listings, because it's the last of the Fred Fish disks. Have no fear, though, because Fred Fish's public domain library will be with us for a long time yet; he's just gone to CD-ROM only distribution and stuff from the library will thus be available to people without CD-ROM drives from other sources - other libraries, bulletin boards and so on. The floppy Fish disks ended with disk 1000, with the last 25 disks coming out together. The best bits of those disks are listed below. If you'd like a listing of the entire collection, from disk 1 to disk 1000, the database you want to get is called KingFisher. I've compiled two versions of it for Prime Artifax PD, one for floppy users (two disks) and one for hard disk-equipped Amigas (single disk). Packing the entire listing onto those disks, which are Old File System and will thus work on any Amiga, was NOT easy - I actually had to replace the "Author:" bit at the end of every description with "By" to make it fit. But I did it! Me, myself, yours truly. Daniel B. Rutter. There, I feel better now. On with the show.

Fish 976 Replex

This is the latest version of this program, which I last mentioned some 17 months ago. Replex substitutes program names that are

about to be executed, e.g. if an icon default tool specifies "c:/MuchMore" and you prefer to use "c:/TextRead", you can have it defined as such, without changing the icon. This version also has a "catch" option to automatically ask for a substitute if a tool wasn't found. You need at least version 2 of the operating system to use it.

UChess

Two issues ago I mentioned UChess, and doggone if another version hasn't come along already. It's a port of the mighty GnuChess version 4, which plays a very strong game of chess. This version's faster and supports high powered graphics boards, as long as you've got Workbench 3. You need WB2 to use UChess at all, and at least 4Mb of RAM (10Mb, preferably!). This is the program itself; the source is on disk 977. You don't need the source to play UChess.

977 Forth

I included this as a curio - Slowest Update in the History of Fish. It's an update to the

MVP-Forth directory on Fish (wait for it) NINE. Nine hundred and sixty-eight disks later, there's now an improved, faster screen editor with a number of interface changes - and that, dear readers, is the extent of the update.

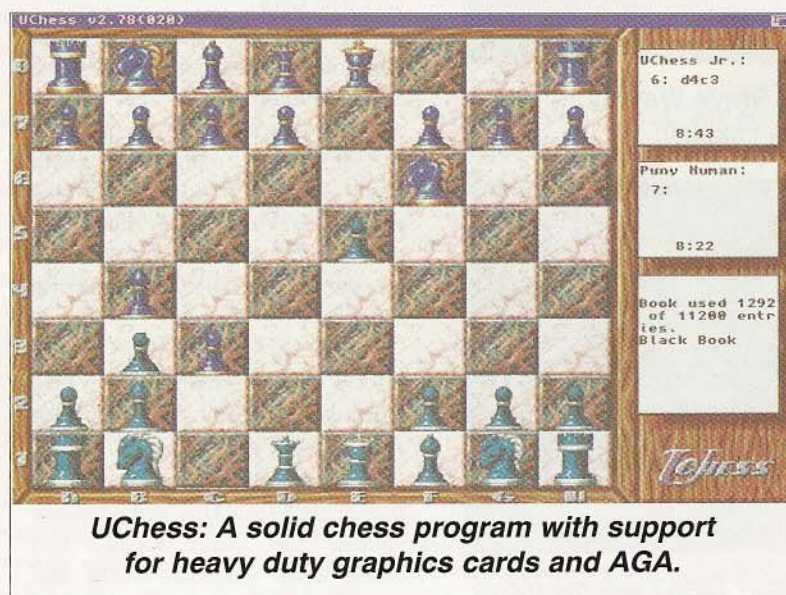
KingCON

This one gets updated every two months. It's another replacement console handler, 100% compatible with the standard handlers, but with filename completion, a review buffer, Intuition menus, jump-scrolling, cursor positioning using the mouse and more.

It requires WB2. This version, 1.2, adds a load of small features including new keyboard shortcuts, and also kills yet more bugs. Completely uncrippled.

LibraryGuide

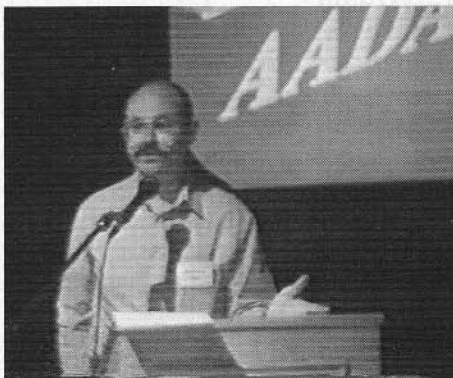
This is An AmigaGuide file that lists about 210 different PD, shareware and commercial libraries, with a simple description of their purpose, version info, where to get them and so on. It's now got 40 more libraries than when I last mentioned it, five months ago, and it's definitely



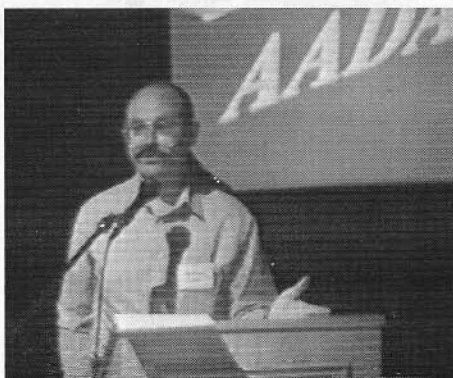
1994 Australian Amiga Developers Conference - a special report.



Arnie Robbins - I can make it faster.



President, Steve Weymss - watch while I explain.



Still watching? Didn't see me move did you?

Amiga Developers are the people who provide the life blood of our favourite computer - the software that makes owning an Amiga worth while. This year heralded the first ever Australian Amiga Developers Conference, organised by the Australian Amiga Developers Association.

Back in the days when there was a Commodore Australia, the AADA urged them to hold such an event, but to no avail. It is a sad irony that such a conference could not happen until the old Commodore was out the way. Perhaps the new Australian distributor will take a keener interest in such things.

On the day

Around 70 attended the conference, ranging from hard core developers to the mildly curious. Despite the current status of Commodore, morale was good. The general outlook remained positive and there was much talk of new products, including a move to establish a CD-ROM authoring service.

Three presenters lined up to inform and entertain the crowds, along with various short bits from AADA party officials.

George Borzykowski proved that Scala MM300 is still a money spinner in the kiosk and presentation graphics world and

shared some impressive examples of his work. Ben Powell explained what you need to do to take advantage of Interactive Systems' Gold Disc mastering facility - a subject which will no doubt be more relevant once the player starts shipping again.

Finally Norman Pakes, from RMF, talked about marketing and packaging of products. Overall, the information was reasonably useful, if a little long winded.

Next year

I thought they could have done better with more shorter presentations, and a little more emphasis on outlining opportunities in the Amiga marketplace - some solid research wouldn't go astray.

Perhaps some sort of resource guide would be handy for those moving into CD-ROM development and wishing to call on the talents of graphic artists, musicians and programmers.

Indeed, the AADA is well placed to do a lot more for themselves and the Amiga community.

Perhaps they should expand their ranks to include professionals using the Amiga to create things - people with whom they could network, use as beta test sights, and provide valuable feed back on market requirements.

Sadly, with many such organisations, much time is spent organising and little time doing. Some would say the AADA has suffered a little from committee syndrome over the past year, but this conference was surely a solid sign that things are now moving into the lets get something done mode. Well done to all concerned - let's hope the local chapters can continue to improve too.

Local Dilemma

Both of the two meetings I have attended in Sydney were filled with considerable discussion relating to the running of the association and devoted little time to actually trying to achieve anything meaningful.

This attitude was highlighted again when at the opening of question time at the conference, the number one issue on the mind of one attendee was why was it that none of the Australian computer press were in attendance? A valid question indeed.

Perhaps the press felt the video of the event would be adequate to review its proceedings? Or perhaps, having attended previous AADA meetings, they had decided the best part always seemed to be after the official bits had ended. The possibility of splitting a half baked pear in two whilst ex-Commodore employee Gary Mason and recently married AADA PR lady Browyn Sleaf fell about the place laughing was too good to resist.

Yes, this reptile of the press did arrive shortly after the conference had finished to extract comments from the attendees.

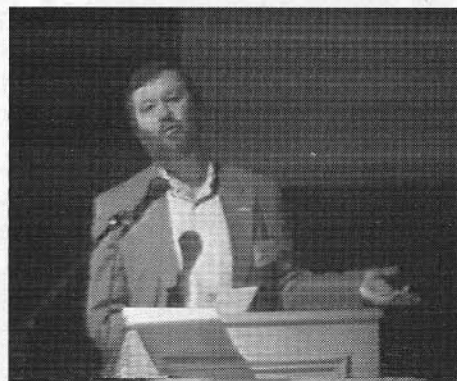
However, instead of filling my ears with the joys of being a developer immersed in the benefits of the first Australian Amiga Conference, all I could hear were the sor-

did tones of some short squat gentleman who insisted the greatest disaster of the last decade was the fact I was not there for the entire eight hours.

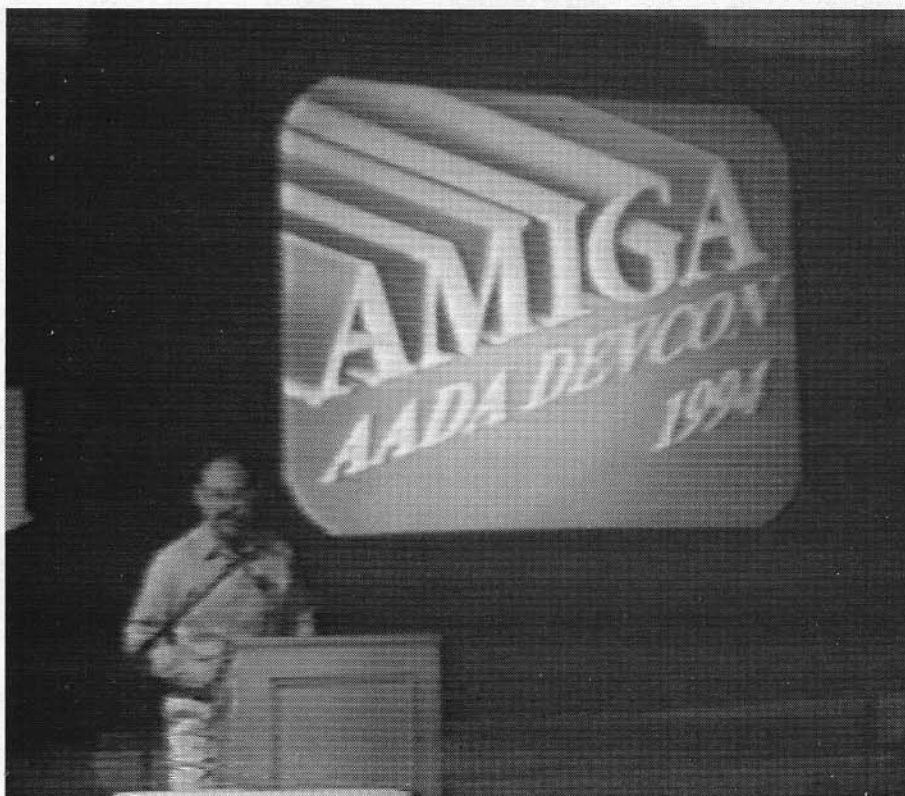
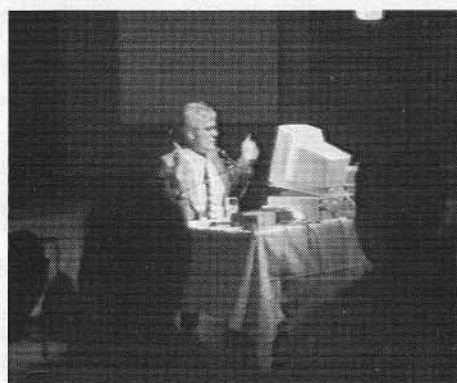
In the magazine business, eight hours is a long time. I have seen the AADA video in fast forward, pasuing where it looked interesting. Some of the more fascinating talking heads appear on this page.

Dr. Greg Perry delivered an exceptionally well animated discussion with the audience. The photo on this page shows him explained how not to insert a disk into your Amiga 600.

For the sake of more good Amiga software, let's hope they all stick at it.



Greg Perry - They should have mounted the thing higher.



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Art Expressions	\$299.00	PowerPacker Pro 4.0A	\$49.00
Bars & Pipes Pro V2	\$399.00	Professional Calc 2.0	\$159.00
Bible Scholar V3.0	\$199.00	Professional Draw 3.0	\$159.00
Bible Reader Pro	\$149.00	Professional Page 4.1	\$149.00
Brilliance 1(run out)	\$79.00	Professional Page	
Brilliance 2	\$199.00	Templates and Design Guide	\$49.00
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Cocoon Morph	\$59.00	QuarterBack Tools Deluxe	\$119.00
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Deluxe Music 2	\$149.00	SAS C 6.5	\$399.00
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Deluxe Paint AGA	\$149.00	Scala Multimedia 300	\$449.00
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978

Man

On UNIX systems, you type "man <command>" to get what's known as the "manpages" for a given command. CShell on the Amiga does a similar thing, but only for its own internal commands unless you jigger around with the doc files. This is a simple Amiga MAN command, which recognises .guide files and uses a different viewer. MAN also recognises TeX-DVI files as well - for the average user, this is not a selling point.

MouseClock

This is a hardware/software project to build a low cost, very small external battery backed up clock calendar for all Amigas. It's particularly designed for A1200, A500 and A600 machines with no clock. It is connected to joystick port 2, and there's a passthrough option. Send in your \$US7 to the Italian author and get the circuit diagram; the parts will then cost around \$20.

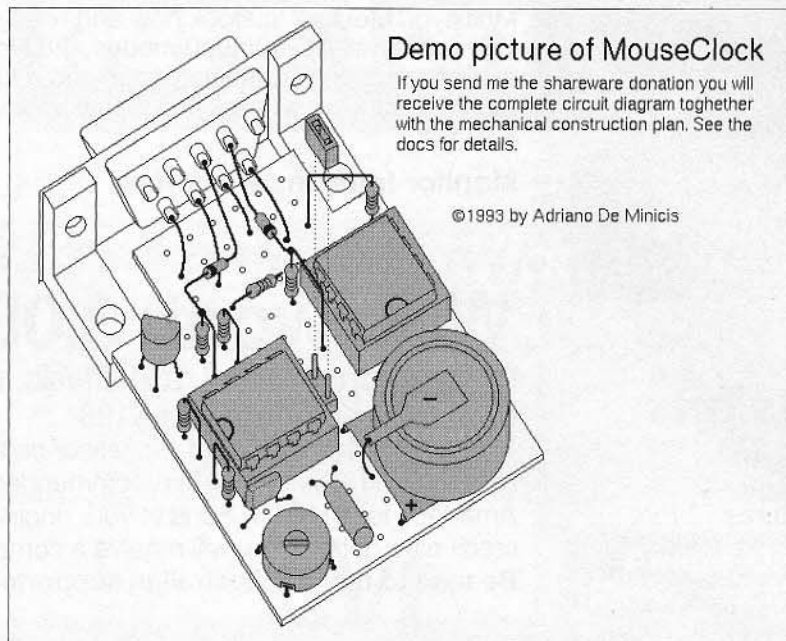
NewEdit

This is a commodity that patches all system string gadgets. Beside some new edit functions, NewEdit supports copy and paste of text between the clipboard and string gadgets, something which I presently do with PowerSnap but it'd be nice to use the system routines.

979

KeysPlease

This program displays a nice rendition of the Amiga keyboard



and allows you to either click on a key-gadget or press a key to find that key's rawcode or ascii value. Codes are displayed in both decimal and hexadecimal.

QMouse

Another version of this multi-function mouse utility, which I last mentioned 15 months ago on version 2.5. This version, 2.9, includes all the old features like automatic window activation, top-line blanking for A3000/A2320 users, system friendly mouse blanking, mouse acceleration and/or threshold, PopCLI, click to front or back back, SunMouse window auto-activation, disk drive declicking, "*" wildcard setting, and more. It adds assorted bugfixes, immediate screenblanking via a hotkey, and the option to have SunMouse happen only when the right mouse button's down. Qmouse requires Kickstart 2.0.

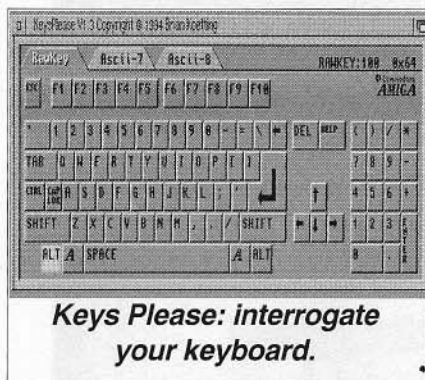
SnoopLibs

Another Snoop-program, this one lets developers and others interested in the functioning, or

non-functioning, of tasks to patch and monitor any library function call from a certain task. The output formats can be changed and the results can be printed to a window, a file or printer. You need at least Workbench 2.

SuperDuper

The latest version, 3.1, of this all-singing all-dancing disk duplicator and formatter, which I last mentioned almost a year ago. It still does disk-to-disk verified copies in less than 100 seconds, RAM and disk buffering so you can output to all floppy drives at once (four unverified copies every 38 seconds from a stacked system!), plus high density floppy support, voice messages, date incrementing, auto-start and plenty more. The changes from version 3.0 are mainly bug fixes with some new features, namely optional simple refresh windows, the new NoStartup switch, automatic source disk reads and better window management. It's still absolutely free.



981

ConPaste

This is a 2.0 commodity that lets you paste clipped text into anything.

Paste into string gadgets. Paste into any text application. ConPaste drops its priority by 1 when pasting text to allow sufficient processor time for the receiving task or window to process the text (so you don't get ConPaste shouting so loud the system doesn't hear what it says).

983

CapsLockExt

This commodity extends the effect of the Caps Lock key to every key on the keyboard, and allows the shift key to temporarily cancel Caps Lock. This causes Caps Lock to act like the Shift Lock key on a typewriter. Requires OS 2 or higher.

TitleClock

A little commodity (about 4k) that puts a clock in the top right corner of a screen's titlebar. It may be set up to display itself on one or more screens without running multiple copies of the program.

It may also be set to follow your default public screen and also to always display on the frontmost screen. Simple, useful, tiny, free.

Viewtek

I last mentioned VT (as its friends know it) ten months ago, on version 1.05. This is v2.1. VT is a feature packed picture and animation viewer which shows most ILBMs (including 24-bit), most GIFs, most JPEGs and most ANIM-5 animations, with support for different palettes for each frame.

VT supports SHAM, CTBL, and PCHG images, and all ECS and AGA display modes. You can view the contents of the clipboard. Version are included for DCTV, EGS, IV-24, Retina, Firecracker, OpalVision, and Picasso. Unsurprisingly, VT requires AmigaDOS 2.04 or later.

984

AGIndex

This is a labour-saving device for writers of AmigaGuide documents. It creates alphabetically sorted indices for .guide files, which are sorted alphabetically and can be accessed in AmigaGuide by pressing the Index button. Index entries can be extracted in two ways; you can have all nodes with references or just all nodes. This could be really useful, and it's freeware. Try it.

Imploder

Hey, better late than never. More than three years after its release, Imploder has made it onto Fish! Imploder is a Freeware program file cruncher (it won't do data files), and I used it all the time when I was still running from floppy, as it gets slightly better compression than PowerPacker in many cases.

On the down side, Imploder's scripting system (for compressing multiple files without a frenzy of mouse clicking) is rudimentary, and it's more likely to cause crash-

es thanks to unkind decompression practices than PowerPacker. But it's still well worth playing with - if only to hear the funky theme music that comes on whenever you run it!

TWA

This is a commodity that remembers the last active window on any screen. If screens are shuffled, the window is automatically re-activated when that screen is brought to front. This avoids the old typing - CLI - commands - into - the - word - processor problem, and is generally very useful. If you actually WANT to switch screens and still type to the last program you were using, though, you have to turn TWA off.

This, v1.4, is an update to version 1.2 which I mentioned a year ago. This version fixes a problem which made it impossible to autoscroll on a screen which is partially in the background. There, I can sleep at night now.

985

Lines

The first of this month's Mind Damaging Puzzle Games. Lines presents you with a Solitaire-ish array of dots, and the aim is to draw as many lines as you can. The basic rules are that only eight directions (horizontal, vertical, and diagonal) are allowed, a line is exactly five points long, and each new line can include at most one point that was used in a previous line.

If you are one of those aberrant individuals who actually likes this kind of thing, you'll love Lines.

NewTool

NewTool quickly replaces the default tool in project icons. NewTool allows you to specify the default tool to use, use a file

requester to pick the default tool, or it will automatically choose the proper tool depending on the file type using WhatIs.library, which is included. This version is a complete rewrite of v37.203, which I mentioned five months ago, and now looks considerably better and also includes a graphical interface to quickly and easily edit your NewTools.prefs file.

SmallPlayer

Ever had a music module which would have been small enough for you to play - if only your player program weren't cluttered with memory-grabbing stuff like equalisers, fancy menus, scrolling greeting displays and nineteen possible file formats?

SmallPlayer is less than 10k, and it'll play any Protracker module, including Powerpacked ones. Free.

986

FDPro2Demo

I'm somewhat awed by the people who are actually good at Fighter Duel. It's a dogfight simulator, with very realistic plane handling and a very unrealistic landscape, over which various World War II planes duke it out in the skies.

This demo version of the new and improved version 2 lets you fly any of the planes, from the mighty Mk XIV Spitfire to the alarming little Komet rocketplane, but you can only fly against two of the abovementioned top-spec Spitfires. You can even play an AA gunner if you like, but it's pretty tedious.

Almost all of the options work, so you can see the prodigious number of bits and bobs the game offers. Definitely worth a look, but an accelerated, flickerfixed machine is recommended.



Fighter Duel Pro 2: enough planes for you?

WBrain

Another neuron-scrambling puzzle. I last mentioned this in January, and the updated version is no less excruciating. It now saves top scores, but I'm sure WBrain players can easily grade themselves by simply measuring the thickness of the padding in their cells. You still need Workbench 2 to run it, and not being able to is one of the few advantages of 1.x. At least it's free.

987

LoanCalc

This is a mortgage/loan calculation utility, which is unique in that it is designed to track "open" mortgages that allow any payment to be made at any time, as well as providing a printed amortization table for fixed mortgages with monthly, semi-monthly, bi-weekly and weekly payment re-schedules. All the usual options can be set, right down to "Mafia" daily interest calculation!

988

DQua

A simple, lousily titled GUI-based utility that solves quadratic

equations. That's right, kids, this critter WILL DO YOUR HOMEWORK FOR YOU! Good luck smuggling the Amiga into your exams.

MegaBall

MegaBall is arguably the best Breakout-clone game available for the Amiga. The original, perfect conversion of Arkanoid has elegant simplicity, and I also rather liked Impact, and Poing is a nice freely distributable sideways variant, but MegaBall strikes an excellent balance between bonuses and uncluttered fun, and with the addition of such innovations as exploding bricks (and bonuses that make them multiply!), it noses ahead.

MegaBall comes with graphics files for ECS and AGA, and has a limited number of boards, which even average players will rapidly get through. \$US15 gets you the registered version, which even comes with, among other things, a set of boards tuned specially for people who like the exploding bricks!

These boards require, as the author says, almost no skill, since one good thwack from the ball sets



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The Guru: decipher thoes error messages.

them off like Chinese New Year. Brilliant. It's even got a great manual. Check it out.

989

AntiCicloVir

A link and bootblock virus detector and exterminator, last mentioned a year ago. This version can detect 126 bootblock, 17 link, 28 file and seven disk validator viruses, 14 trojans and 8 bombs. It automatically checks each inserted disk for boot block and disk validator viruses, and constantly monitors memory and system vectors. Nothing more to pay.

VirusZ II

On the same disk, there's release II of this popular virus detector, that now recognizes 279 boot and 145 file viruses. The file checker can also decrunch files for testing. The memory checker removes all known viruses from memory without causing crashes and checks memory for viruses regularly. Requires OS2.O+.

990

BootWriter

A bootblock installer with many features. You can install either an ordinary bootblock, an inbuilt one with the possibility to enter some text, or any other bootblock of your choice. Bootblocks can be saved and loaded as

either normal or Powerpacked files.

Bootblock files and disks' bootblocks are checked for viruses using the recognition code of VirusZ, and, if available, the bootblock.library and brainfile (BB-BF). There are about 550 different bootblocks recognised. All filing systems are supported.

This package also contains the assembler includes for the Bootblock.library which were missing on AmigaLibDisk919. Free.

991

ASwarmII

Yet Another Screenblanker. Modern colour monitors, generally speaking, do NOT need screen blankers. Old monochrome ones that were left for long periods of time certainly did (remember those autotellers with the intro screen burned into the phosphor?), but these days they're just an amusing diversion.

If you've gotta have one, but don't want a million different modules and options, try this. ASwarmII is an abstract graphic saver which shows from 1-10 "wasps" being chased by 1-500 "bees".

The screen will blank entirely under periods of high CPU usage. ASwarmII requires Amiga OS 2.04 and MagicUserInterface (MUI) 1.4 or later.

I'll be mentioning MUI in more depth next month; for now, find it for yourself, since it's not on Fish.

Iconian

This icon editor is a replacement for the standard one included with WB3. It supports OS 3.x functions, AGA display modes such as palette sharing, and 256 colours.

Iconian should do everything

IconEdit can, and more. IFF brushes are remapped to the current Workbench screen colors, using the new palette sharing functions under KickStart 3.x. All common drawing tools are present, including bevel boxes. Several resizable windows are used. Iconian's supposed to work on WB2, but it died silently every time I tried to do it. Ah well.

PrtSc

An update to this tiddler. This makes the PrtSc key on your keyboard actually (gasp) print the screen, by calling the graphic dump program. It's got a better interface and can dump the screen to a file instead of the printer if desired. Free.

SmartCache

A small (about 3K) program that patches itself into the track-disk.device to provide a whole cylinder cache mechanism for all your floppy drives, including high density.

My tests with Diskspeed showed the usual astounding thousand-fold-increases in speed for directory scanning (keep your hair on, that's not as good as it'd be in the real world), but everything except seek/read got faster, so if you've got some spare RAM going begging to use as a cache and use floppies a lot, give SmartCache a go.

992

Workbench Startup Manager

Wbsm activates or deactivates programs run from the WBStartup drawer. When run from the user-startup script, hold down the mouse button, and you can pick and choose which wbstartup programs to go with.

993

Fleuch

I last mentioned this nifty little Thrust clone five months ago. It now sports more on-screen data (which makes it slower...) and tons more levels, including some of such difficulty as to boggle WBrain players. There are 29 levels in all; the object is to pick up a ball with a inflexible linking thing and climb safely to the next stage, without being shot or running into anything. Gives you a deep visceral appreciation for the laws of physics, and what it feels like to be one end of a dumbbell.

994

TheGuru

The Guru is a program that helps you to understand the strange guru message numbers. Type in the number of a guru error (Software Failure in sterilised WB2+ NewSpeak) or DOS error number, and check out the explanation. This may not be especially satisfying, but it's better than nothing.

995

BrowserII

The latest version of the seemingly immortal "Programmer's Workbench". Allows you to easily and conveniently move, copy, rename, and delete files and directories using the mouse. Also provides a method to execute either Workbench or CLI programs by double clicking them or by selecting them from a definable menu with lots of arguments. Uses whatIs.library to detect file types and executes commands based on these.

WhatIs

WhatIs.library, as used in BrowserII and several other pro-

grams, can detect file types and can be told about new ones via an ASCII file. Includes a few tools (with source) for the manipulation of filenames.

996

ECopy

The latest version of this utility to copy files from mass storage devices onto floppy disks, using the minimum number of disks. Files can be optionally moved. Uncopied files can have their names saved to a file and be used for copying at a later time. Great for picture and music collectors; and also free!

NewEXT

This little CLI command renames files, retaining the original name minus the extension and adding on the specified extension. Supports wildcards.

998

bBaselll

Another version of this easy to use, versatile, yet full featured database program that will run on any Amiga with WB1.3 or subsequent. Search or sort on any field, print mailing labels, delete or undelete records, mail merge, get reports in many formats, scramble files, flag records, and more. Fields are user-configurable, so bBase can be used to keep track of addresses, tape or video collections, recipe files, or anything else.

Touch

It's weird that such a simple program as Touch, which tweaks files' dates to the current time, has now hit v1.3. This version just fixes some bugs; you'll know if you need it.

999

ADAM

This calculation program can handle numbers with up to 700 digits before and after the decimal point, and has memory, square root, sine and more. It can also calculate pi to 700 digits. If you need a program which can do this, then this is the program you need. Thank you.

DBB

Digital Breadboard is a full GUI digital circuit simulator. DBB currently supports 2 and 3 input AND, OR, NAND, and NOR gates, NOT and XOR gates, D, JK, and SR edge-triggered flip-flops, multiple independent clocks, switched and pulsed inputs, outputs, Vcc, GND, independent 4-channel trace scope, event counters, variable timer speed, preferences printing, and more.

Includes combinational logic design utilities. If all this makes no sense at all to you, please do not get this program.

1000

Enforcer

This is a programmers' tool to monitor illegal memory access for 68020/68851, 68030, and 68040 CPUs. Since I last mentioned it five months ago, it's been slightly beefed up, but as before if you don't get it, don't get it.

Changes include fixing the bug that stopped it working with some 030 boards with lots of RAM, better behaviour with a variety of other accelerators and an improved VERBOSE mode.

Well, that's it. The last of the Fish disks - long live the Fish discs! See you next month.

□

Milky Way CAFE

By Greg Abernethy

► Milky Way Cafe is a small business simulation where the player is given the responsibility of managing a cafe out in space. You must use logic skills to determine the correct amount of ingredients to produce according to the number of ships docking at the cafe on that particular day, and then hire alien help and advertising posters, if necessary, to sell Boggle Thirst Zappers to the crews of passing spaceships.

The program comes on one disk, and can be installed onto a hard drive with a minimum of fuss. The game is completely mouse-controlled; the only keyboard entry is when you put your name in the high score table. The interface is easy to use, and has been designed for the classroom environment.

Managing the cafe

When you are at the main menu you can view the spaceships that dock at the cafe, from which you can pick up valuable clues about the number of crew members in each ship. The ingredients required to make up a Boggle Thirst Zapper can also be viewed, as well as the high score table. When you begin the game you are asked to select the number of days to manage the cafe. This can make a game last from 15 minutes to about 45.

You are then given a review of your duties and expectations while managing the cafe. You can view the docking schedule for that day, helping you to determine how many Thirst Zappers you need to make. The stock purchase page appears, where you buy and sell the raw materials.

One student spent his whole time "playing the stock market" by buying and selling the different ingredients for a profit each day. After you have purchased your ingredients, you determine how many drinks to produce and what price to charge for each drink. You can then hire help and buy advertising, which is a good idea if you are expecting lots of customers.

A graphic of the Cafe is then shown, and your results for the day are displayed. The trading and



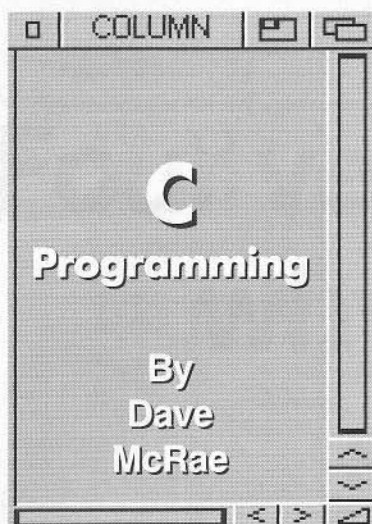
balance sheets of the Cafe are then displayed, and you can arrange to pay back your overdraft if you have been trading profitably. Watch out that your overdraft doesn't become too large, or you will be declared bankrupt. You continue managing the cafe until your time is up, when you get a review of your efforts. If you have been lucky enough to make the high score table you get to play a game of "Zap That Alien".

The game uses colourful graphics and sound effects to teach basic mathematics, problem solving and small business concepts and is ideally suited for the classroom or home. It is easy to learn but hard to master, and provides a challenge that should guarantee long term use of the software.

Milky Way Cafe retails for \$39.00 and can be ordered directly from Rush Software on (042) 342107.

□





Programming the Audio Device using C - Telephone Tone Dial program

We all know how good the Amiga is! Fantastic images, animations and sound are all possible with this rather inexpensive computer. Straight out of the box, the Amiga is capable of quite amazing things. No need to buy a sound or graphics card. No messing about with interrupts and I/O address conflicts. No siree. This is the Amiga. The best little secret on planet Microsoft.

Now I've got that out of my system, I should probably get on with the article.

The point of this prose is to give you, the reader (preferably a reader with a programming bent, though anyone with a penchant for mind-bendingly dull ventures may also be interested), an insight into another possible use of the Amiga's hardware using its native software language 'C'.

The problem

The reason for this software's existence is a demonstration I put together using Scala. Scala is a multimedia and presentation package that is capable of everything. I won't bother trying to explain that last sentence, just take my word for it. Anyway, I needed a way for the user to be able to dial a telephone number on the screen without actually having

access to the numeric keypad on the telephone. What I needed was a piece of software to generate the tones the telephone exchange uses to connect your call to the number you have dialled.

The solution

As far as hardware went, all I needed was an RCA cable to plug into one of the Amiga's audio ports and some helpful information from a Telecom techo (Thanks Fitz...) as to where on the circuit board inside the phone the audio cable should be soldered. At this point I discovered there are some very harsh laws to do with tampering with the telephone system. You are simply not allowed to just come along and plug anything you see fit into the Telecom network.

The problem with the solution

Basically I was left with three options. One, use a modem as an interface between the Amiga and the phone. A point to take note of here is the modem must be Telecom approved, otherwise you're still in trouble. The only problem with this idea is the expense. Two, use a Line Isolation Unit (LIU) that is Austel approved. These are the sort of things Telecom uses for interfacing a radio to the Commander system so when you're put on hold you don't have to listen to Greensleeves. Three, consider a career in astronomy. I chose option two.

Now to the software. This program requires version 2.0 or greater of the operating system.

I decided I wanted to make the code small and "pure" so I could make the program resident. Resident commands basically load off the disk and into memory, so when

the command is called again the resident version is found first and is executed right where it was found. No copy is made, so it is even quicker than having the command executed from the RAM disk. The catch is that residentable commands need to be pure. That is, any global data areas should be reset to a known value on startup (usually zero), otherwise all sorts of catastrophes can occur.

Here, then, is an explanation of the code in listing 1. This program was compiled with SAS/C version 6.5 using the following options:

```
PARAMETERS=REGISTERS
NOSTACKCHECK
ERRORREXX
NOMULTIPLEINCLUDES
STRUCTUREE QUIVALENCE
LIST
OPTIMIZE
LINK
OPTIMIZERSIZE
SMALLCODE
SMALLDATA
VERBOSE
STRIPDEBUG
MEMORYSIZE=HUGE
NOSTARTUP
GLOBALSYMBOLTABLE=GST:LIBS_GST
```

Please note the NOSTARTUP option. This tells the linker not to include the standard C startup code, which normally takes care of housekeeping such as clearing any global data areas if necessary, opening libraries, setting up standard I/O and parameter parsing from the command line. On the Amiga it is also necessary to do some special setting up if the program is started from the Workbench. As there is none of this code included in the link, this program cannot be run from the Workbench. If you try to, the guru will most certainly pay you a visit.


```

Line No.   Source
1  /***** Source *****/
2  /**
3  /** $Filename:  Work:Dev/C-Saws/ACAR/Tonedial.c $
4  /** $VER:      1.0 $
5  /** $Date:      31 Jul 1994 $
6  /**
7  /**
8  /**
9  /**
10 /**      Legal Stuff
11 /** This code is placed in the public domain and may be used by anyone for anything.
12 /** No warranty is issued or implied. This code may or may not do what it is
13 /** supposed to do and anyone using it does so at his/her own risk. So there...
14 /**
15 /**
16 /** $Description:  Example code using the audio device written by Dave McRae $
17 /**
18 /** $HISTORY:
19 /**
20 /** <1>      31 Jul 1994 18:58:45
21 /**      Initial Coding
22 /**
23 /** End of Work:Dev/C-Saws/ACAR/Tonedial.c header
24 /*****
25 #define __USE_SYSBASE
26 #include <exec/types.h>
27 #include <exec/memory.h>
28 #include <devices/audio.h>
29 #include <dos/dos.h>
30 #include <dos/dosextens.h>
31 #include <graphics/gtbase.h>
32 #include <math.h>
33 #include <ctype.h>
34 #include <stdio.h>
35 #include <stdlib.h>
36 #include <string.h>
37 #include <proto/exec.h>
38 #include <proto/dos.h>
39 #include <string.h>
40 /**
41 /** Set up version strings
42 /**
43 #include "Tonedial_Rev.h"
44 UBYTE vers[] = VERSTAG;
45 /**
46 /** A little message to output when we start up
47 /**
48 UBYTE      StartupMsg[] = "Tonedial by Dave McRae";
49 /**
50 /** Set up debugging info
51 /**
52 #define MYDEBUG      0
53 #if MYDEBUG
54 /** Set to a non-zero # of ticks if a delay is wanted after each debug message */
55 #define DEBUGDELAY      0
56 /** Always non-zero for the DDX macros */
57 #define DDEBUGDELAY      50
58 #include <clib/dos_protos.h>
59 #define bug myprintf
60 #define D(x) (x); if (DEBUGDELAY > 0) Delay(DEBUGDELAY)
61 #define DD(x) (x); Delay(DDEBUGDELAY)
62 #define DQ(x) (x)
63 #else
64 /** First level debugging turned off */
65 #define D(x) ;
66 #define DD(x) ;
67 #define DD(x) ;
68 #endif
69 /**
70 /** Define Library Bases
71 /**
72 struct      ExecBase
73 struct      DosLibrary
74 struct      GfxBase
75 /**
76 /** Set up audio channels
77 /**
78 UBYTE      whichchannel_X[] = { 1 };
79 UBYTE      whichchannel_Y[] = { 8 };
80 /**
81 /** Structure of frequencies for each digit on telephone keypad
82 /**
83 struct      Tonerable {
84     char      key;
85     LONG      X_Tone;
86     LONG      Y_Tone;
87 } Tonerable[] = {
88     { '0', 1336, 941 },
89     { '1', 1209, 697 },
90     { '2', 1336, 697 },
91     { '3', 1477, 697 },
92     { '4', 1209, 770 },
93     { '5', 1336, 770 },
94     { '6', 1477, 770 },
95     { '7', 1209, 852 },
96     { '8', 1336, 852 },
97     { '9', 1477, 852 },
98     { '*', 1209, 941 },
99     { '#', 1477, 941 }
100 };
101 /**
102 /** Define misc. values used later
103 /**
104 #define STAR_ORST      10
105 #define HASH_ORST      11
106 #define DOSLIB
107 #define DOSVER      36L
108 #define AUDIODEV
109 #define PAL_CLOCK      (3546895L)
110 #define NTSC_CLOCK      (3579545L)
111 #define AUDIO_VOLUME      (3)
112 #define INTER_SOUND_DELAY      (3)
113 #define SAMP_DURATION      13 / 100
114 #define STD_DELAY      (3)
115 #define PROGRAMLEN      (31)
116 #define TEMPLATE      "PHONENUM/A"
117 #define OPT_PN      0
118 #define OPT_COUNT      1
119 #define CSI      "!"
120 /**
121 /** Define Sine Wave used to play tone
122 /**
123 #define SAMPLES      (14)
124 BYTE chip_waveptr[SAMPLES] = {
125     0, 12, 22, 28, 28, 22, 12, 0, -12, -22, -28, -28, -22, -12
126 };
127 char audiodev[] = { AUDIODEV };
128 /**
129 /** Forward declarations for compiler
130 /**
131 static int myprintf(char *ctl, ...);
132 static int print_help(BOOL all, char *name);
133 /**

```



```

134 *--- Main routine
135 */
136 int __saveds mainRoutine (void)
137 {
138     char *argv[2];
139     int rc;
140     progname[PROGNAMELEN];
141     opts[OPT_COUNT];
142     RDArgs *rdargs;
143     struct IOAudio *AIOPtrX, *AIOPtrY;
144     struct MsgPort *AudioMPX, *AudioMPY;
145     ULONG deviceX, deviceY;
146     LONG xfrequency;
147     LONG yfrequency;
148     LONG clock;
149     LONG samples;
150     LONG samcyc;
151     UWORD i;

152     /*
153     *--- Because this is resident, initialize all vars here, rather than auto-init
154     */
155     SysBase = *(struct ExecBase **)4;
156     rc = RETURN_OK;
157     samples = SAMPLES;
158     samcyc = 1;
159     rdargs = 0;
160     AudioMPX = 0;
161     AudioMPY = 0;
162     deviceX = (ULONG)-1;
163     deviceY = (ULONG)-1;
164     AIOPtrX = 0;
165     AIOPtrY = 0;

166     /*
167     *--- Clear the options array, just to be on the safe side...
168     */
169     memset((char *)opts, 0, sizeof(opts));

170     /*
171     *--- Open DOS Library for myprintf(). If this fails then can't report anything!!!
172     */
173     if ((DOSBase = (struct DosLibary *)OpenLibrary(DOSLIB, DOSVER)) == 0L) {
174         rc = RETURN_FAIL;
175         goto killaudio;
176     }

177     GetProgramName(progname, PROGNAMELEN);
178     argv[0] = progname;

179     myprintf("%s0;32;40;>0m%s0;39;39;>0m", CSI, StartupMsg, CSI);
180     rdargs = ReadArgs(TEMPLATE, opts, NULL);

181     /*
182     *--- If there was an error parsing, print an error message and exit!
183     */
184     if (rdargs == NULL) {
185         print_help(FALSE, argv[0]);
186         rc = RETURN_ERROR;
187         goto killaudio;
188     }

189     argv[1] = (char *)opts[OPT_PN];
190     if (toupper(argv[1][0]) == 'H') {
191         print_help(TRUE, argv[0]);
192         rc = RETURN_WARN;
193         goto killaudio;
194     }

195     /*
196     *--- Check Graphics Library for NTSC or PAL version
197     */
198     GfxBase = (struct GfxBase *)OpenLibrary("graphics.library", 0L);
199     if (GfxBase == 0L) {
200         rc = RETURN_FAIL;
201         goto killaudio;
202     }

203     if (GfxBase->DisplayFlags & PAL)
204         clock = PAL_CLOCK;
205     else
206         clock = NTSC_CLOCK;

207     if (GfxBase)
208         CloseLibrary((struct Library *)GfxBase);

209     /*
210     *--- Create Audio I/O Block
211     */
212     AIOPtrX = (struct IOAudio *)AllocMem((LONG)sizeof(struct IOAudio), MEMF_PUBLIC|MEMF_CLEAR);
213     if (AIOPtrX == 0) {
214         rc = RETURN_FAIL;
215         goto killaudio;
216     }

217     AIOPtrY = (struct IOAudio *)AllocMem((LONG)sizeof(struct IOAudio), MEMF_PUBLIC|MEMF_CLEAR);
218     if (AIOPtrY == 0) {
219         rc = RETURN_FAIL;
220         goto killaudio;
221     }

222     D(bug("IO block created..."));

223     /*
224     *--- Create Reply port for audio.device to reply to our commands
225     */
226     AudioMPX = CreatePort(0L, 0L);
227     if (AudioMPX == 0) {
228         rc = RETURN_FAIL;
229         goto killaudio;
230     }

231     AudioMPY = CreatePort(0L, 0L);
232     if (AudioMPY == 0) {
233         rc = RETURN_FAIL;
234         goto killaudio;
235     }

236     D(bug("Port created..."));

237     /*
238     *--- Setup the audio I/O block for channel allocation
239     */
240     AIOPtrX->ioa_Request.io_Message.mn_ReplyPort = AudioMPX;
241     AIOPtrX->ioa_Request.io_Message.mn_Node.In_Pri = 127;
242     AIOPtrX->ioa_Request.io_Command = ADCMD_ALLOCATE;
243     AIOPtrX->ioa_Request.io_Flags = 0;
244     AIOPtrX->ioa_Allocate = 0;
245     AIOPtrX->ioa_Data = whichchannel_X;
246     AIOPtrX->ioa_Length = sizeof(whichchannel_X);

247     AIOPtrY->ioa_Request.io_Message.mn_ReplyPort = AudioMPY;
248     AIOPtrY->ioa_Request.io_Message.mn_Node.In_Pri = 127;
249     AIOPtrY->ioa_Request.io_Command = ADCMD_ALLOCATE;
250     AIOPtrY->ioa_Request.io_Flags = 0;
251     AIOPtrY->ioa_Allocate = 0;
252     AIOPtrY->ioa_Data = whichchannel_Y;
253     AIOPtrY->ioa_Length = sizeof(whichchannel_Y);

254     D(bug("I/O block init for CH alloc...."));

255     /*
256     *--- Open AUDIO device and allocate channel. Loop waiting if not available.
257     *--- BEWARE: This loop waiting may cause a lock out....
258     */
259     while (deviceX = OpenDevice(audiodev, 0L, (struct IORequest *) AIOPtrX, 0L)) {}

260     while (deviceY = OpenDevice(audiodev, 0L, (struct IORequest *) AIOPtrY, 0L)) {}

261     D(bug("Audio Dev opened, CH allocated..."));

262     /*

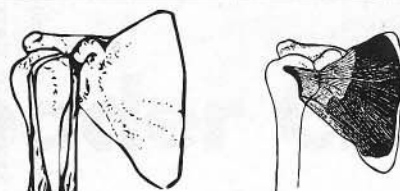
```


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"Flexer" V1.3 4/5/92-93 by Andrew Forrest

Author	Title	Publisher	off public
Adams, Douglas	Dirk Gently's Holistic Detective Agency	Par Books Ltd.	1988
Adams, Douglas	Hitchhiker's Guide to The Galaxy, The	Gull Publishing	1986
Baum, L. Frank	Wizard of Oz, The	Mandarin Publishers Limited	1983
Berenford, Dick	Uncensored Boy's Own, The	Macdonald & Co (Publishers) Ltd	1980
Boardman, Tom Jr	Science Fiction Stories	Octopus Books Limited	1983
Burnet, Frances Hodgson	Secret Garden, The	Octopus Books Limited	1983
Carroll, Lewis	Alice's Adventures in Wonderland	Octopus Books Limited	1981
Clarke, Arthur C.	2001: Odyssey Two	Granada Publishing Limited	1982
Clarke, Arthur C.	2001: Odyssey Three	Grafton Books	1983
Crichton, Michael	Jurassic Park	Panorama House	1991
Davis, Jim	Garfield: Here's Looking at You	Ravette Books Limited	1985
Davis, Jim	Garfield: Life And Laughs	Ravette Books Limited	1988
Davis, Jim	Garfield: We Love You Too	Ravette Books Limited	1985
Dixie, Sir Arthur Conan	Lord of the Rings, The	Heinemann Publishers	1986

Database II

A collection of simple to use database
programs for maintaining all sorts of lists -
from catalogues to clients. Flexer -
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programs included on release II of the
database compilation. Flexer's form-like
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Workbench 2.x and 3.0

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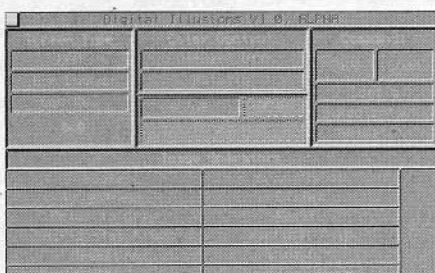
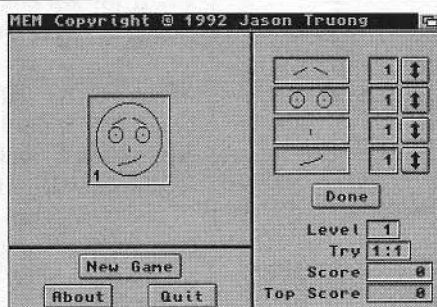
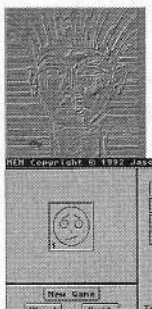


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- #8 - Asteroids, Bug Blaster, Microbe, Poing, Revenge of the Mutant Camels, Ring War, Trix
- #9 - Pacman (brilliant copy of the original), OmegaRace, Columns, Nebula and POD.
- #10 - Donkey Kong, Galaga (the best!), Artillerus, Fleuch
- #11 - Scorched Tanks - the latest super version, 2-4 players.
- Adventure 1 - Island of Nephoton, Rescue & Jungle, Zut Alor! and Treasure Island. Some text based.
- Star Trek - The Game, with sound-FX, animation, point and click interface, various missions. 1Mb
- Balance of Power - Strategy game for one or two players. Control the world powers to avoid nuclear war.
- UChess - Chess game - Needs 4Mb and accelerator - Ideal for A1200 or 4000. AGA Support.

Home Office

- CAD - Five Programs: Speaker and Circuit Design, Landscape & Architectural

- Database - Hyperbase, HyperDialer, DataEasy, Home Manager, bBasell
- Forms Designer - Text based forms editor.
- Genealogy 1 - A-Gene and Family History
- Genealogy 2 - ArJap - Up to 1000 people, WB2.x/1Mb required.
- Home Budget - Assorted home finance programs.
- Home Tools - TouchTyping, simple database, Furniture Helper, Resume Maker, VCR Database, Diet Aid and LP Database.
- Spreadsheets - Easy to use SCalc, SPREAD and EasyCalc
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Communications

- NCOMM 3.0 - Shareware AREXX, SCRIPTing, simple BBS mode.
- Term 3.4 - Freeware, scripting, powerful, 3 disks, hard drive req. WB2.x required.

FonTS

- CG-Font Pack 1 - Suitable for Workbench 2.x and above, Final Copy, Professional Page, Pagestream and PageSetter III. 60 different Compugraphic fonts. 6 disk set.
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Cartoons (Require 1Mb FREE)

- Cartoon 1: Batman, Shuttlecock, Stealthy
- Cartoon 2: Amy Vs Walker
- Cartoon 3: Juliette, Juliette 2, Juggler 2
- Cartoon 4: F16 Combat, Stealthy Manover II
- Cartoon 5: Bigs Bunny
- Big Cartoons (Require 3Mb)
- Big Cartoon 1: Anti-Leafmings
- Big Cartoon 2: Coyote
- Big Cartoon 3: Pogo
- Big Cartoon 4: The Dating Game (2 disks)
- Big Cartoon 5: Unsporting
- Big Cartoon 6: Enterprise Docking
- Big Cartoon 7: Bait-Masking

Education

- Education 1 - Elements, Draw Map, Rubik, Space Log, Gears
- Education 2 - Gravity Well, Planets, Life Cycles, Orbit, Enigmas, ZPlot
- Education 3 - Word Puzzle, Crossword, Word Game, A-Solve, POWER LOGO!
- Education 4 - PlotMap - Two disk set - creates maps of world, save in IFF format.
- Hypertext - Create text files with links to animation, graphics, sounds, songs - anything (via AREXX). 1Mb & WB2.x required.
- Stockmarket Simulation - Buy and sell shares, take out a bank overdraft, and eventually qualify to joining the insiders club. Local program to simulate local conditions.
- Chemistry - Create 3D models of different molecules

Emulation

- Atari Emulator - German Only
- MS-DOS Emulator - PC-TASK (shareware-no write to disk) & Transformer. Run most MS-DOS business software.
- C64 Emulator - Run C64 Program, Interface C64 Peripherals (opt. interface available from U.S.A. Only)

Graphics and Animation

- Graphics 1 - Still Store: For sequencing stills for video production
- Graphics 2 - Mostra, ImageLab, TitleGen, sMovie, ABridge, SceneGenDemo, SlideMaster
- Graphics 3 - Icon-Editor, Turbo Title, Cyro-Animation Utils
- Graphics 4 - FreePaint, Graffiti, PED, PicBase - IFF Database
- MandleBrot Tools - Six Disks, Create

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- MiniMorph - Create your own 16 grey-scale morphs. 1Mb
- AGA Demos 1 - HOIS-AGA and AGA- Amiga Boing.
- Mobile! - By Spaceballs - 3D Animation, A1200 and 3000 compatible.
- AGA Images - Six disks of hot AGA pictures including 3D rendered in Aladdin, and photos.
- Imagine Objects 1 - Enterprise, Chess Pieces, Amiga 3000.

Music and Sound

- Med 3.1 - The best Amiga low-level sequencer - some MIDI support
- Sound Tools - Play, edit, arrange, distort and create IFF sound samples
- Sound FX 1 - Filled with short, sweet sound samples - Bells, Horns, Dogs..
- Remix 1 - Two remixed music samples - Madonna and Black Box
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- Tracks 2 - Beat, Benny, Biochal1, Biochal2, Blue Days, Blue Moon, Boss, Call Me, T.C.S.
- Tracks 3 - Cloud Song, Creation 2, Crocets, Ear, Electric Dreams, Last Ninja II, Megaforce, Metal Synth
- Tracks 4 - Oxygene, Piano-Plink, PopCorn, RSI-Hard, Skylight, Smoke, SupeBASIC, Tocatta
- Tracks 5 - BatDance, Bond, Fresh House, Lambda, Pawnl, Wasteland
- Movie Samples - 9 Disks of IFF 'Make My Day' style samples (Tracks 6-23 also available now.)

Improve Your Workbench

- AGA Utilities 1 - AGA Anim players, picture showers, AGA disable, GIF

shower and more.

- WB1.3 Superdisk - Bootable, ready-to-run. Read/Write MS-DOS disks, DIRWORK file manager, AutoCLI WB Enhancer, includes Documentation on disk.
- WB2.x Enhancer - Icons, Presets, NAG program for appointments, Fractal Screen Blanker, KCommodity Auto window activation, Clock/Memory usage, Keystroke Audible Click, Gadgetless window closing, Hotkey, Mouse accelerator and much more.
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- DOS Utilities III - All the latest PD Utilities to organise your disks
- MS-DOS Utilities - READ/WRITE and FORMAT 720K MS-DOS Disks!
- Hard Disk Utilities 1 - HD Backup, mark out bad blocks, alter your boot logo, find misplaced files and HDMem.
- Parbench - Network two Amigas via a special Parallel cable. Ideal for CDTV owners to use as a CD-ROM drive.

Programming

- ACE AmigaBASIC Compiler 1.1 - Speed up your BASIC programs into fast executable binary. Includes linker and assembler.
- Pascal - Two disks, PASCAL includes PCQ compiler, A68K, Blink, Debugger, Mon, examples and PCQ source.

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```

263  *--- Setup Audio I/O block to play a sample using CMD_WRITE.
264  */
265  AIOptx->ioa_Request.io_Message.mn_ReplyPort      = AudioMPX;
266  AIOptx->ioa_Request.io_Command                  = CMD_WRITE;
267  AIOptx->ioa_Request.io_Flags                     = AIOPTX_PERVOL;
268  AIOptx->ioa_Data                                  = { UBYTE } waveptr;
269  AIOptx->ioa_Length                                = samples;
270  AIOptx->ioa_Volume                                = AUDIO_VOLUME;
271  AIOptx->ioa_Request.io_Message.mn_ReplyPort      = AudioMPX;
272  AIOptx->ioa_Request.io_Command                  = CMD_WRITE;
273  AIOptx->ioa_Request.io_Flags                     = AIOPTX_PERVOL;
274  AIOptx->ioa_Data                                  = { UBYTE } waveptr;
275  AIOptx->ioa_Length                                = samples;
276  AIOptx->ioa_Volume                                = AUDIO_VOLUME;
277  /*
278  *--- Send the command to start a sound using BeginIO()
279  */
280  D(bug("Starting tone now..."));
281  for (i=0; i<strlen(argv[1]); i++) {
282    if (!isdigit(argv[1][i])) {
283      if (argv[1][i] == '#') {
284        Xfrequency = ToneTable[(HASH_OFST) .X_Tone;
285        Yfrequency = ToneTable[(HASH_OFST) .Y_Tone;
286        Vfrequency = ToneTable[(SHA_OFST) .V_Tone;
287        Wfrequency = ToneTable[(STAR_OFST) .W_Tone;
288        Zfrequency = ToneTable[(STAR_OFST) .Z_Tone;
289        Delay(STD_DELAY * TICKS_PER_SECOND);
290        continue;
291      } else {
292        D(bug("%c is not a dialable thing!!!!", argv[1][i]));
293        continue;
294      }
295    } else {
296      Xfrequency = ToneTable[(argv[1][i] - '0') .X_Tone;
297      Yfrequency = ToneTable[(argv[1][i] - '0') .Y_Tone;
298      Vfrequency = ToneTable[(argv[1][i] - '0') .V_Tone;
299      Wfrequency = ToneTable[(argv[1][i] - '0') .W_Tone;
300      Zfrequency = ToneTable[(argv[1][i] - '0') .Z_Tone;
301    }
302  }
303  AIOptx->ioa_Period = clock+samcyc/(samples*Xfrequency);
304  AIOptx->ioa_Cycles = Xfrequency*SAMP_DURATION/samcyc;
305  AIOptx->ioa_Period = clock+samcyc/(samples*Yfrequency);
306  AIOptx->ioa_Cycles = Yfrequency*SAMP_DURATION/samcyc;
307  AIOptx->ioa_Period = clock+samcyc/(samples*Vfrequency);
308  AIOptx->ioa_Cycles = Vfrequency*SAMP_DURATION/samcyc;
309  AIOptx->ioa_Period = clock+samcyc/(samples*Wfrequency);
310  AIOptx->ioa_Cycles = Wfrequency*SAMP_DURATION/samcyc;
311  AIOptx->ioa_Period = clock+samcyc/(samples*Zfrequency);
312  AIOptx->ioa_Cycles = Zfrequency*SAMP_DURATION/samcyc;
313  GetMsg(AudioMPX);
314  Wait( 1L << AudioMPX->mp_SigBit);
315  GetMsg(AudioMPX);
316  /*
317  *--- Wait a while between tones
318  */
319  Delay(INTR_SOUND_DELAY);
320  }
321  D(bug("Sound Finished..."));
322  KillAudio();
323  #if MYDEBUG
324  /*
325  */

```


The listing

Lines 1-24 are just a comment header to describe what this code does and other relevant information.

Line 25 defines a macro called `_USE_SYSBASE`. This instructs the compiler to perform some voodoo when generating any calls to the Exec library. It speeds up the calling process on Amigas with 68020 and higher processors.

Lines 26-39 include the header files needed by this program to compile successfully. These header files include information on the structures internal to the Amiga operating system as well as letting the compiler know any values that may be used.

Lines 40-44 set up a version string which can be displayed using the AmigaDOS version command. The header file `ToneDial_Rev.h` is generated by a program called `bumprev` which is in the public domain. `ToneDial_Rev.h` looks like this:

```
#define VERSION 1
#define REVISION 1
#define DATE "1.8.94"
#define VERS "ToneDial 1.1"
#define VSTRING "ToneDial 1.1
(1.8.94)r"
#define VERSTAG "\0$VER:
ToneDial 1.1 (1.8.94)"
```

The `tonedial` program uses only the `VERSTAG` macro.

Lines 45-48 define a startup message which is printed to the CLI window when the program is run.

Lines 49-68 set up debugging capabilities. Setting `MYDEBUG` to 1 will enable diagnostic messages to the CLI window, which helps when developing the program and debugging it. Debugging diagnostics are created by entering `D(bug("Debugging message"));`.

When `MYDEBUG` is set to 1, this message will be incorporated in the program and output to the CLI window. When `MYDEBUG` is 0, this line will have no effect at all, effectively removing the diagnostic from the program.

Lines 69-74 define the library bases used by the program. The bases are necessary if any calls to those libraries are performed. In the case of the graphics library, `GfxBase`, this program only opens the library to read a value that tells the program whether it's running on a PAL or NTSC Amiga.

Lines 75-79 initialise which audio channels (0 to 3) we are going to open. In this case we want two channels on the same side of the stereo spectrum - I decided on the right side channels 0 and 3. If you want audio output on the left side, change these values to 2 and 4, which corresponds to left channels 1 and 2. Sorry if it's a bit confusing but I'll show you what I mean.

Channel Parameter	Means Channel...
1	Right channel 0
2	Left channel 1
4	Left channel 2
8	Right channel 3

Lines 80-100 define a lookup table for the frequencies to use for each digit the phone can dial. The tone you hear on the phone when you dial someone is actually the product of two separate tones, here called `X_Tone` and `Y_Tone`. The key characters 0 to 9, * and # are not used by the program, but are here so it is easy to see which tones are associated with which key.

Lines 101-119 define various constants used throughout the

program. The interesting macros here are `AUDIO_VOLUME`, which is set to 3 at the moment. To hear the tones clearly, you may want to increase the volume to 64, which is the maximum. I have set it to 3 because the phone circuitry was distorting the tone if I played it any louder. `INTER_SOUND_DELAY` is the delay between successive tones. This is currently set to 60 milliseconds (3/50ths of a second). `SAMP_DURATION` is the total time each tone is played for. It is set to 13/100ths of a second. `STD_DELAY` is the amount of time to delay after an area code has been entered. Area codes are typed inside brackets, as in (02) for the Sydney area.

Lines 120-126 define the actual sine wave to be played out.

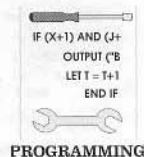
Line 127 is simply a string with the name of the audio device.

Lines 128-132 are forward declarations for the compiler so it knows what to expect when I try calling these routines before the compiler has found their definitions at the bottom of the file.

The Main Routine

Line 136 defines the entry point of the program. Usually the entry point of a C program is a routine called `main()`. Because we are not using standard startup code, we don't need a routine called `main()`. In this case, the entry point is simply the first routine in the file. The `_saveds` parameter tells the compiler to load the data segment register (A4 is the data segment register).

Usually this is also part of the standard startup code, and basically gives the program addressability to the near data section of the program. If we don't set this register up, we will be reading and



writing data somewhere else in memory which is not a good thing and generally should be avoided lest the guru return.

Lines 138-151 are the local variable definitions used in `main_routine()`.

Lines 152-169 reset all global variables to a known state. This fixes any problems that may occur when the program is resident and is executed more than once.

Line 155 initialises `SysBase`. This is the base of the Exec library. This is also usually done by the standard startup code; Exec is the only library on the Amiga whose base is set up in this fashion. All other libraries must be opened using the Exec call `OpenLibrary()`. Of course this would create a chicken and the egg situation if Exec also had to be opened with the `OpenLibrary` call, so its base address is simply read from location 4 in RAM.

Lines 170-176 open the DOS library. The DOS library is responsible for all I/O to disks through the directory structure and I/O to and from the screen for programs started from the CLI. If `OpenLibrary` fails, for example if you try to run the program under version 1.3 of the operating system, `DOSBase` will be set to zero. If this happens we set the return code, `rc`, to the `RETURN_FAIL` value (defined in `dos/dos.h`) and jump to `killaudio`.

OK, OK. So I shouldn't use a `goto`... I know, I know. I spent many sleepless hours pondering this. Fighting that voice within saying over and over again "Dave, don't use a `goto`, its sloppy Dave, don't do it...". Eventually I justified it to myself by saying "This is an example program to show how to use the audio device, not a detailed tutorial on structured programming techniques.". So, if you think it is sloppy pro-

gramming, and can't bear to see such a travesty committed against good programming philosophy, fix it.

Lines 177-178 set up the program name into the `argv` array. This is usually performed by the standard startup code and was really only done here because originally I did link in the startup code and everything was already set up to use the `argv` array. Really just lazy I s'pose.

Line 179 prints the startup message to the CLI window. The extra CSI parameters and numbers with semicolons separating them change the foreground and background colors so the message stands out a bit more.

Lines 180-189 set up the argument pointer. This is the phone number we are going to dial. If the program was started with no argument, we print a usage line on the CLI window and exit with a return code of `RETURN_ERROR`.

Lines 190-194 check to see if the argument is the letter 'H'. If it is print a bit more info on the CLI window before exiting with `RETURN_WARN`.

Lines 199-208 check the graphics library for the type of Amiga. There is a difference in the clock frequency between PAL and NTSC Amigas which must be taken into consideration, otherwise the playback frequency will be different from what is intended if the program is run on an Amiga running in NTSC mode.

Lines 209-222 allocate the memory for the audio device I/O blocks. Parameters pertinent to the audio device are kept in the I/O block. Pointers to these blocks are passed to the audio device when performing various functions. If either of the allocations fail, we set the return code to `RETURN_FAIL` and exit.

Lines 223-236 create the message ports for both the audio channels we are using. These ports are used by the device to notify us when some function we have asked the device to perform has been completed.

Lines 237-254 initialise the I/O blocks for the audio channels we are going to use. We set the addresses of the message ports created in lines 223-236 and set the priority of the channels to 127. This is the maximum priority, which basically means if anybody else currently has these channels, and they have a lower priority, then they're not going to have them for long, 'cause we're going to steal them. The command we are sending to the audio device is `ADCMD_ALLOCATE` which is saying "I want to use the channels specified in the I/O block Data field".

Lines 255-261 attempt to open the device and allocate the channels we requested in the I/O block. As I stated at the beginning, I wrote this program to be used with Scala MM300. This is the latest release of Scala and now has the built in ability to play a sound when a 'screen button' is selected, the sound typically being a click. So what I found was happening was that Scala would still own the audio device channels used to play the click sound when the tone dial program tried to allocate them, and my `OpenDevice()` calls would fail. I found by just looping and calling `OpenDevice()` over and over again I would eventually get access to the audio channels. All this happens in about half a second, meaning there is no real degradation to the multitasking system.

However, if you have a program which owns the audio channels for the duration of its life, the tonedial program will effectively

go into an infinite loop here while it waits for the OpenDevice() call to work. You can tell this has happened because no tones will be played and the rest of the Amiga will run like a dog. It can make an '040 Amiga 4000 perform with less vigour than a 68000 machine. If this situation does arise, either quit the other program that owns the audio device or reboot the Amiga. There are nicer ways of dealing with this, but this works for me, so this is how it is.

Lines 262-276 initialise the I/O blocks with the data that doesn't change. This includes the message port, the command CMD_WRITE which says "play the current sample", the flag ADIOF_PERVOL which says we want to set the period and volume of the sound when it is started. We also give it a pointer to the wave data and the length of the data. Finally we set the volume the tones should be played at.

At last!

Lines 281-321 are the main loop (finally!). Here we read the argument to the tonedial program, character by character, processing each one as we go. If the character is numeric, we simply use it as an index into our frequency table. If it isn't numeric we check to see if it is a hash '#', star '*' or a closing bracket ')'. The closing bracket is used to add a delay before commencing on the next digit. This is used for STD numbers where a pause is inserted after the area code. All other characters are ignored so spaces, minus signs or any other character can be used to make the argument more readable. For example, if "(02) 879-7455" is entered (Amiga Review editorial number) the bracket after the 02 creates a pause of STD_DELAY seconds, but the space after the

bracket is ignored, as is the minus sign. Remember, if you do want spaces in the phone number, enclose the entire number in quotes or only part of the number will make it to your speakers.

At lines 300-303 we determine the actual period and cycle values for the sample to be played at. Period is the time elapsed between the output of successive sound samples, in units of system clock ticks. The Cycle field says how many times the entire wave will be played.

Lines 311-316 actually start the tones, then wait for a message to come back from the device to say the tone has finished playing on both channels. We then get the message from both message queues.

Line 320 is a delay which gives the pause between tones.

When all the characters in the argument string are processed, we continue on at line 322 if MYDEBUG is 1, otherwise the first executable line after the main loop is line 331.

Lines 331-346 are where we

clean up. We delete the message ports we allocated, close the device for each channel we allocated, free any memory we have and close the DOS library.

Finally at line 347 we return with the return code as the parameter. Because we haven't used the standard startup, we cannot use the usual command to end the program, exit().

The last 33 lines aren't really necessary for the audio device, so I won't bother to explain them here - suffice to say all 33 are totally void of goto statements!

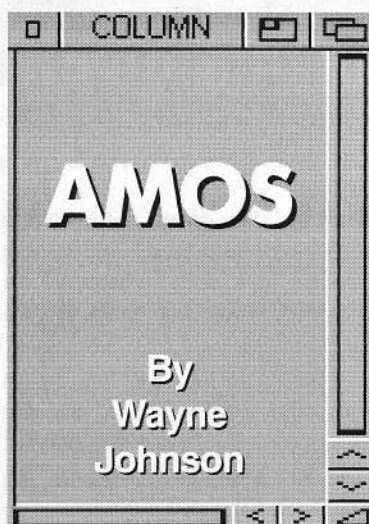
Now if you want to make the tonedial program resident, just type 'resident tonedial pure' at the CLI prompt or if you want it to be resident all the time, just add that line to your S:user_startup file.

To run the program just type "tonedial h" to get help or 'tonedial "(02) 879-7455"' if you would like it to dial the ACAR offices.

Well there you go. Hope you enjoy having your Amiga phone everybody.

□

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► An AMOS program runs in a totally different environment to other programs. One of the biggest disadvantages of this is that implanting a backgadget into your AMOS programs allows you to flip to the Workbench, but to flip back to the AMOS program you have to use Left-Amiga A.

In the first place, it is good to change your compiler settings to Left-Amiga M, as this is the standard Workbench keyboard method of switching screens and is often the first thing people try when Workbench's backgadget fails to reveal a program's screen. Implanting a backgadget into an AMOS program is a fairly simple matter. Just add an Interface button or a ZONE and have it issue an AMOS TO BACK command.

But adding a little style to the AMOS backgadget makes a program much more interesting and professional. Take a look at figure 1. The backgadget is usually placed at the top right hand corner. This is an example of an AMOS screen with fake buttons to make the application look Workbench compatible. I've showed you how to do this in previous tutorials.

What I have done in this example to the backgadget is create a routine that produces a flop down menu similar to a Microsoft Windows close gadget. On the next page is the code to produce a working flop down menu. You will only need to change a few lines to add several

menu items. I won't go through the program, but I will explain how the menu drawing works. The menu itself is just a filled box with a black outline. If you have other graphics near this, they will be corrupted by the drawing and removing of the menu.

Therefore, we must save the area under the menu before it's drawn. The simplest way to do this is to grab it as a BOB. No one need ever know! Then you're free to draw the menu and remove it. Once it's cleared with colour 1, you can simply paste the BOB back down in its original position.

This example provides two menu slots detected by zones. Simply add more zones for more menu items. In a lot of ways, these are easier to create than using the MENU commands, and look heaps better as well. You'll also notice that the menu and gadget are mouse-smart like Workbench. Have a go to see what I mean.

NEWS

- Big big news! No, not Intuition or AGA. You can sit back down again. Europress will release

Klik & Play very very soon. I have been playing around with the beta version and the results are simply amazing.

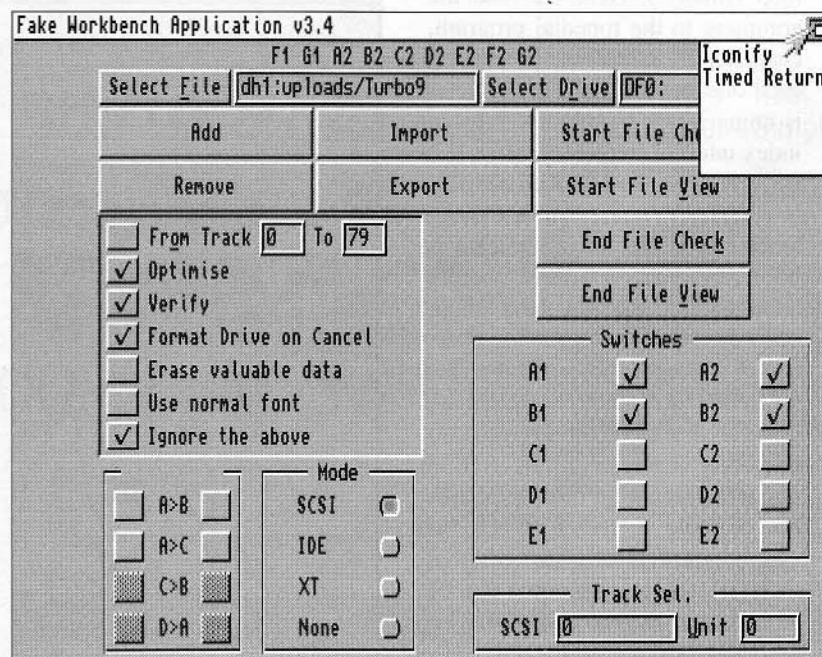
For those not in the know, Klik & Play is the new game creation system for Windows on the IBM PC. It was originally rumoured to be the PC version of AMOS Pro, but it has become a complete game authoring package, entirely button & icon driven.

At this stage, it will be distributed by Pactronics and will be well within everyone's budget. Keep your eyes peeled!

- Newsletter 16 from the AMOS Club will be shortly released. This is the last one. However, THE CLUB WILL CONTINUE! Bernard Wiemers of Canberra will be taking the reins and will be producing a new disk-based newsletter.

Angela Cockburn, our PD Reviewer, will continue her work with the new newsletter, as will I from time to time. Full details next month.

Program listing over page.




```

IF (X+1) AND (J+)
  OUTPUT 'B
  LET T = T+1
END IF

```

PROGRAMMING

```

BackGad Menu - Sausage 17/8/94
'Set up a fake WB Screen.
'You can import Graphics
'instead of this method.

```

```

Screen Open 0,640,256,8,Hires
Palette 0,2730,0,4095,
1675,2457,3003,2968,4007
Ink 3
Bar 0,0 To 640,10
Ink 2
Draw 0,11 To 640,11
Box 614,-1 To 640,11
Ink 4
Paint 620,5
Reserve Zone 3
Set Zone 1,614,0 To 640,11
Global X1,Y1,X2,Y2
X1=500 : Y1=11 : X2=640 : Y2=34
Limit Mouse 128,42 To 446,297
Gr Writing 0
'Menu Size Registers
'-----

```

```

Do
If Mouse Zone=1 and Mouse Key=1 and GIVECULOR=0
Ink 2 : Bar 615,0 To 639,10
GIVECULOR=1 : GIVEMENU
End If

If Mouse Key=0 and GIVECULOR=1 or Mouse Zone<1 and GIVECULOR=1
Ink 4 : Bar 615,0 To 639,10
GIVECULOR=0 : RELEASEMENU
End If

If Mouse Key=2 : Edit : End If
Loop

```

```

Procedure GIVEMENU
Set Zone 2,X1,Y1 To X2,Y1+10
Set Zone 3,X1,Y1+11 To X2,Y1+21
Get Bob 1,X1,Y1 To X2,Y2
Ink 2
Box X1,Y1 To X2,Y2
Ink 3
Bar X1+1,Y1+1 To X2-1,Y2-1
Ink 2
Text 510,20,'Iconify'
Text 510,30,'PopUp in 5 mins'
End Proc

```

```

Procedure RELEASEMENU
If Mouse Zone=2 : Say 'Import Selected',1 : End If
If Mouse Zone=3 : Say 'PopUp Selected',1 : End If
Reset Zone 2
Reset Zone 3
Ink 1
Bar X1,Y1 To X2,Y2
Paste Bob X1,Y1,1
End Proc

```

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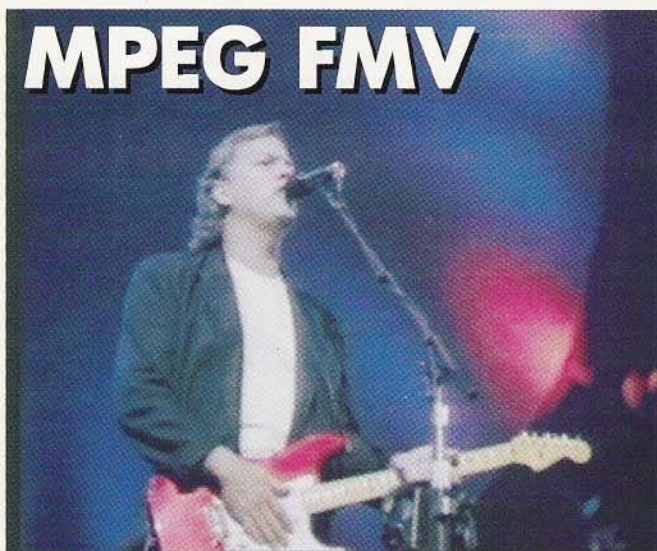
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All of these are exactly the same as the regular videotape versions in content, but you get the added quality and convenience of CD.

The video images were universally at least as good as HQ VHS, possibly better if you've got

a TV with SVHS input to hook the CD32's Y/C connection up to. There was only occasional MPEG artifacting - suspicious blocks or weird textures. The sound, of course, was excellent. And, of course, both will stay just as good for years and years and years.

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Problems? About the only one is that the start of every track has a definite gap as you pass the track marker. This can't be avoided. It's not very annoying though; if you've got an MPEG-equipped CD32, more music video discs to suit various tastes are on the way. □



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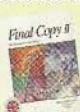
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It's not surprising then to find menus such as "press" and "art board". About the only useful features were used in Professional Page, including some of the comprehensible icons and pointers.

Basically, the more I look at this program the more it makes me wince. Considering you can get Professional Page for around \$149 new and much cheaper second hand, I would suggest you save up for a real DTP program if you plan to do anything useful. In the meantime, tinker your way through PageSetter, and get to know a few basic functions.

Pagestream 3.0 Shipping!

According to our SoftLogik contact on Compuserve, Pagestream 3.0 is now shipping! After delays with printers (hey, we understand about that), and having to remove a few unfinished functions from the code, the product is finally on the way out the door.

What's missing? Graphics linked to text will have to wait for the first free upgrade, which will arrive soon after 3.0. They didn't say what else has been left out - let's hope it's not much. We're seriously looking at making the switch from Pro Page to Pagestream with this release, so we'll be keeping you posted. According to the specification sheets, Professional Page files will load directly into Pagestream 3.0.

With Gold Disk sticking to the PC until they can see the light at the end of the Commodore tunnel, it's unlikely anything new will happen to Pro Page for some time - if ever.

PD Time Savers for DTP

When it comes to time saving features, Genies are the way to go. Pro Page comes with a few, and you can modify them and create your own. But if you're not up programming ARexx, Don's Genies are a bunch of nifty little numbers. From border patterns and grouping to special effects. It's on Fish 925, but you can buy a Professional Page Enhancer disk from Prime Artifax for a measly \$5.00 including postage which includes the genies plus other utilities and goodies for Pro Page 3 or better. Also, so Pagestream users won't feel left out, there's an Enhancer disk for you too. A bunch of new drivers, Postscript utilities AND MORE! But, wait, if you call now, you'll also receive... ahem.

Requires PageStream 2.x or better. Phone Prime Artifax on (02) 879 7455.

Professional Page Tips

Here's a few little tips to keep you going. Firstly, the Alt key. If you import an image into a box, and you want to adjust its position, click on the box with the image in it. Then hold down the Alt key and click and hold down the left mouse button on the image. Wait a few seconds and the image will change colour. Don't worry, this isn't permanent - it means you've grabbed it. You can now release the Alt key and, still holding down the left mouse button, move the image inside the box. Then release the mouse button and wacko the diddle! [Even I don't know how to do that. Ed]

Highlighting text does not happen across linked boxes, unless you use the trusty Shift key. Click once with the text tool at the beginning of the text you want to highlight. Hold down the shift key then simply click where you want the highlighted region to end. You can keep extending the highlight by clicking further on, with the shift key held down.

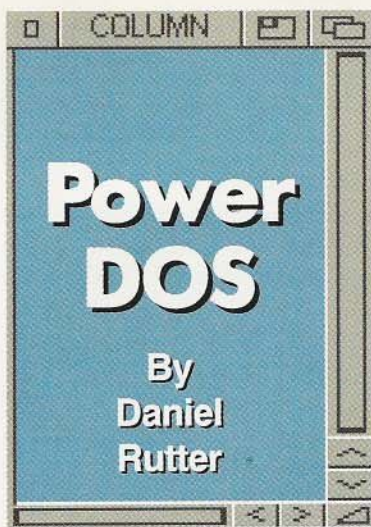
If you're using a large screen mode, as I mentioned in July, then here's a little trick. If you've got Workbench 2 or above, use the IControl Prefs program to set Screen Drag to left Amiga. Now, by holding down the left Amiga key and dragging you can move the screen around without clicking the title bar.

Next month I'll have more Pro Page tips on style tags and also getting around a few bugs. If you have any Pro Page questions or problems write in or fax us. We unfortunately don't have large amounts of time to spend talking to readers, so take advantage of the numbers below.

ACAR Improvements

We are continuing to make changes and improvements to the magazine. We dropped the chunky paper from the middle, and there a number of smaller changes. We are also considering having all the rendered covers made into posters. What do you think? If you have any constructive comments or questions regarding the magazine send them in or fax us. PO Box 288, Gladesville 2111, NSW. Fax/Data: (02) 816 4714.

□



Essential Utilities

Last month I ranted about CShell, a DOS shell that does just about anything. I'll do more CShell tips in future columns; this month I'd like to tell all you captive readers about some other nifty DOS tricks.

You don't need to be using a humungous mega-shell like Csh to dip a toe into the waters of command line wizardry. everyone can benefit from simple things, like aliases and assigns.

When I got my first Amiga, I marvelled at the wisdom of the DOS designers who decided to call the boot batch file startup-sequence. There's a great number of ways to type this filename, and only one of them is right. With the arrival of user-startup, in the latter days of DOS 1.3, the Amiga surpassed in complexity even the antique IBM compatibles' autoexec.bat and config.sys combo.

So what's an Amigoid to do, to avoid the Death of a Thousand Typos? A simple solution is to add "alias es ed s:startup-sequence" to the shell-startup, the file that's executed whenever you open a shell window. Now simply typing "es" will bring do the job.

Controversy time

You can do the same sort of thing for user-startup if you want, but I haven't. This is because I don't use a user-startup. The Moral

Majority of the Amiga world will now be standing and booing; shut up, I'm not trying to make single-file startups compulsory.

The original idea behind the user-startup was to stop people fooling with the startup-sequences when their technical abilities were better suited to zapping aliens, and to give install programs a consistent place to put their assigns and other stuff. In a stock Amiga, the startup-sequence remains inviolate while new programs put their extra bits into the user-startup, which is called by an if exists...execute...endif three-liner towards the end of the startup-sequence. Neat, simple.

But not simple enough. All of my assigns are performed by MultiAssign (pick it up on my ancient HotPD companion disk HotPD4, from Prime Artifax), which reads a text file of my 61 assigns and performs them significantly faster, not to mention putting them all in one place and not being bothered if an assign refers to another assign that hasn't even been made yet! So I don't want some clunky separate file being executed and calling Assign umpteen times, slowing my startup down and complicating my life. My user-startup file still exists, but it's just a dummy to attract the attention of automatic installers. Whatever they add to it, I review, and add to the startup-sequence by hand.

Why do some people have religious wars over the user-startup? The short answer is they're short of real hobbies (I suggest radio controlled cars), the long answer is that ditching the user-startup is Considered Harmful by Commodore, because the user-startup lets a new version of the operating system be installed without trashing a custom startup. All the non-standard stuff's in the user-startup, which new OS installs don't touch.

Assign your life away

Why so many assigns? Glad you asked. Basic system assigns like T: and REXX: only take up six of the lines in MultiAssign's config file. Application assigns for things like Art Department Professional, NComm and GPFax eat a few more. Now we're into the forest of specific assigns, a habit I suggest you acquire.

Text goes into my data:text directory, to which is assigned tx:. Text on Star Trek goes in tx:startrek, to which is assign tk:. I need a short name for it; I look at that directory a lot, OK? Got a problem with that?

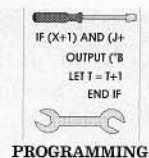
Text on alien spacecraft and similar topics goes in tx:greenmen, to which is assigned ufo:. Text on technical topics goes in tx:tech (tech:). Articles in progress go in tx:articles (art:). Finished articles go in art:done (dn:), unless they're finished HotPD articles, in which case they go in art:hotpds (hpd:). Text I can't pigeonhole goes in tx:justplainweird, to which is assigned odd:. And on it goes.

Don't be afraid to make assigns all over the place, particularly if you have a big collection of related files, like pictures, text or sounds. At about 100 bytes per assign, it won't break the bank!

Start snooping

One program no DOS basher - or, indeed, Amiga user - should be without is SnoopDOS, by Eddy Carroll (the most recent version, 1.7, is on my HotPD 7 companion disk set). Recently a number of other similar programs have appeared - SnoopLibs, Snoopy and DOSTrace - which are all useful, but for general purpose, easy to use system snooping Carroll's baby's still the only show in town.

SnoopDOS's monitors various DOS calls. If you're afflicted with



a program that dies silently and you don't know why, or that does something dumb like tell you it's out of RAM when there's 5Mb left, SnoopDOS is the least painful way out of the problem.

It avoids doing clumsy string searches through programs, hunting for obscure file and library names which may or may not be the source of the problem.

SnoopDOS's operation is quite flexible. You can turn on or off checking of LoadSeg(), DeleteFile(), Execute(), Open() and CurrentDir(), and also screen out Lock() and CurrentDir() calls from the Shell and Workbench processes, to cut down the reams of output a busy system can generate. Turn everything on and SnoopDOS will miss a load of events, as it tries to keep up with the system while multitasking politely in the background. The -w option lets SnoopDOS choke back the system so it never misses a play; everything's slower, but you see all the events.

This is not as useful as it seems, since some failures result from two or more programs in our wonderful pre-emptive multitasking OS doing things which are individually harmless, but which are explosive in that particular combination. Sometimes just running SnoopDOS at all is enough to desync the offending processes and get the system back on track. but using -w will do it every time, or, even worse, give you a new flavour of crash. This, for your edification, is the nearest thing the Amiga has to the Uncertainty Principle - observing something changes the object being observed!

If you've got a combo-crash problem like this - I've had them now and then, always in my startup-sequence, and I know people who've had them in the WBStartup stage of the boot - you can waste your life doing foolish

diagnostic things like inserting flagwaving echo statements ("Made it to line 20!"). This is, in hacker parlance, like kicking dead whales down the beach - slow, difficult and disgusting.

Alternately, you can use shotgun debugging, and just jumble your startup-sequence or WBStartup STARTPRI values around until the problem goes away, or turns into something more interesting. Some people feel compelled to get to the root of all technical problems, perhaps due to a sneaking suspicion that something in their computer isn't working logically; since finding reasons for program clashes is like nailing jelly to a tree, such folks generally get re-trained real quick.

Getting back to SnoopDOS, you can set it to spew all its output to a window (the default), but this isn't much use if the program you're diagnosing is causing your Amiga to enter yoyo mode (system up, system down, system up...). Far better is to use the -z<filename> option and send the output to a file, which you can leisurely read after the fireworks. Even better is -z+<filename>, which opens a file in append mode so you can do several test boots, for example, and put all of the results in one file for ease of reference. You can also view the log as it proceeds.

If you're a real power user, SnoopDOS 1.7 can even send its output to an external serial terminal. You hook up anything that displays incoming ASCII to the serial port, and all the SnoopDOS text goes to it. I've done it with my Amstrad NC100 Notebook baby computer, but you could also use another Amiga running a terminal program, a dumb terminal like the old VT100s, or even a paper teletype or similar vanilla serial printer. Actually doing these last

two marks you as a certified maniac, and I advise you to avoid anyone who's impressed when you tell them you did it.

Echo point

One last note for startup-sequence error-checking. Not many people know that if you put "set echo on" at the top of your startup, all the commands will be displayed as they execute. You can do this in the ordinary Commodore shell as well, though there's no good reason to use it outside batch files (an honourable mention will go to anyone who can tell me a reason).

Dumb MS-DOS Tricks

It's no secret that I'm assistant editor of PC Review as well as Amiga Review. This means I have to use MS-DOS machines, and even Microsoft Windows, every day. Lest anyone starts thinking AmigaDOS is annoying to use, I think an occasional series on the dumber features of MS-DOS based systems is in order.

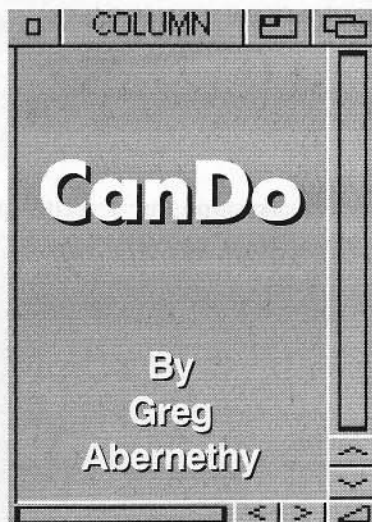
Yesterday I was trying to resuscitate a PC that had sneezed its brains out, and to that end was running a respected commercial disk salvage package, PCTools for Windows' DiskFix. It did not run. The reason it did not run was that several programs were interfering with its operation in an unspecified way. It listed all the offending process names. There were dozens.

One of them was itself.

I laughed heartily, and formatted the hard drive.

That's it for this month - remember, if you've got a curly question about AmigaDOS, send it in. It might make you feel better to know someone you don't even know is laughing at your misfortune.

□



Designing a help file creator

Help files add a professional touch to any type of software, so this month I thought it would be interesting to design a Help File Creator and Displayer that can be incorporated into any application. The user can access the help files at any time by pressing the "Help" key, clicking on a button or selecting a menu option. I will leave these options to the individual, as they will vary from application to application.

The help file displayer I have designed is very simple and can be enhanced considerably. Once again, it is up to the designer to use his imagination in this area. I have changed the style of writing the scripts for each application by including the printed script generated by the CanDo Deck printer.

Explanation

This Card contains two documents and one button. The two docs are for displaying the list of topics and info on the currently selected topic. When the button is clicked, a requester will appear asking you to select the help file to load. The selected file is loaded and then checked to see how many topics are in the file. The script loops through the info for each topic, stores it, and then saves the help file to the same directory as "help.dat".

Creating the creator

```
CanDo Deck Code

Deck "HelpDeck"

Card "HSetUp"
Window "UserWindow"
Definition
Origin 0,0
Size 640,256
Title "Help Files Creator..."
NumberOfColors 4
WindowColors 0,1,0 ; Detail, Block, Background
WindowObjects CLOSEBUTTON
WindowFlags ACTIVATE SEPARATESCREEN TOPFRONT
EndScript
OnCloseButton
Quit
EndScript
EndObject
TextButton "Create"
Definition
Origin 222,235
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN ,2,3 ; Style, Pen1, Pen2
TextColors 1,0,NORMAL ; PenA, PenB, DrawMode
Text " Create Help File "
Border SHADOW ,2,1 ; BorderStyle, MainPen, ExtraPen
Highlight COMPLEMENT
ButtonFlags NONE
EndScript
OnRelease
Dispose Help
Let DatFile = AskForFile Name(TheCurrent Directory,
"Select Help File..",100,40)
If DatFile = ""
ExitScript
EndIf
MakeDocument "Work"
WorkWithDocument "Work"
LoadDocument DatFile,"Work"
Let HelpFile = PathOf(DatFile)||"help.dat"
Let L = LinesInDocument
```

Cont'd next page...


```

If L > 0
Let Topics = 0
Let x = 0
Loop
Let x = x + 1
PositionOnLine x
Let lin = TrimString(TheLine)
If GetChars(TheLine,1,1) = "@"
Let Topics = Topics + 1
Let Help[Topics].Name = RemoveChars(lin,1,1)
EndIf
Until x = L
If Topics > 0
Let cnt = 0
Let p = 1
MakeDocument "Hold"
Loop
Let done = 0
Let tim = 0
Loop
WorkWithDocument "Work"
Let p = p + 1
PositionOnLine p
Let lin = TrimString(TheLine)
If GetChars(lin,1,1) <> "@"
WorkWithDocument "Hold"
Type lin,NEWLINE
Else
Let done = 1
EndIf
Until done = 1 or p = L
Let cnt = cnt + 1
Let Help[cnt].txt = TextFromDocument("Hold")
Flush "Hold"
Until cnt = Topics
SaveVariable Help,HelpFile
WorkWithDocument "Help"
Clear DOCUMENT
WorkWithDocument "List"
Clear DOCUMENT
Let N = NumberOfArrayEntries(Help)
Let X = 0
Loop
Let X = X + 1

```

```

Type TrimString (Help[X].Name),NEWLINE
Until X = N
Delete CHARACTER , -1
MoveCursorTo STARTOF DOCUMENT
EndIf
EndIf
EndScript
EndObject
List "ListDoc"
Definition
Origin 4,14
Size 628,87
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN ,2,3 ; Style, Pen1, Pen2
TextColors 1,0,JAM2 ; PenA, PenB, DrawMode
Border DOUBLEBEVEL ,2,1 ; BorderStyle, MainPen, ExtraPen
Document "List" ; where the text comes from
EndScript
OnRelease
WorkWithDocument "List"
Let L = TheLineNumber
If TheLine = ""
ExitScript
EndIf
WorkWithDocument "Help"
Clear DOCUMENT
Type Help[L].txt,NEWLINE
MoveCursorTo STARTOF DOCUMENT
EndScript
EndObject
Memo "HelpDoc"
Definition
Origin 8,108
Size 624,120
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN ,2,3 ; Style, Pen1, Pen2
TextColors 1,0,JAM2 ; PenA, PenB, DrawMode
Border DOUBLEBEVEL ,2,1 ; BorderStyle, MainPen, ExtraPen
Document "Help" ; where the text comes from
ScrollBars RIGHT
InputStyle NOTYPING
EndScript
EndObject
* End of Card "HSetup"

```


Creating the displayer

Deck Code

Deck "DisplayDeck"

Card "DisplayHelp"

BeforeAttachment

Dispose Help

If Supervised = FALSE

If Exists (The Origin Directory|| "help.dat")

Let Help = LoadVariable

(TheOriginDirectory|| "help.dat")

EndIf

Else

If Exists (TheCurrent Directory|| "help.dat")

LetHelp=LoadVariable(TheCurrent

Directory|| "help.dat")

EndIf

EndIf

EndScript

AfterAttachment

Let N = NumberOfArrayEntries (Help)

If N > 0

WorkWithDocument "Help"

Clear DOCUMENT

WorkWithDocument "List"

Clear DOCUMENT

Let X = 0

Loop

Let X = X + 1

Type TrimString (Help[X].Name),NEWLINE

Until X = N

Delete CHARACTER , -1

MoveCursorTo STARTOF DOCUMENT

EndIf

EndScript

Window "UserWindow"

Definition

Origin 0,0

Size 640,256

Title "Program Help Files..."

NumberOfColors 4

WindowColors 0,1,0 ; Detail, Block, Background

WindowObjects CLOSEBUTTON

WindowFlags ACTIVATE SEPARATESCREENTOFRONT

EndScript

OnCloseButton

Quit

EndScript

EndObject

PushButton "Continue"

Definition

Origin 250,235

Font "topaz",8 ; FontName, PointSize

PrintStyle PLAIN ,2,3 ; Style, Pen1, Pen2

TextColors 1,0,NORMAL ; PenA, PenB, DrawMode

Text " Continue "

Border SHADOW ,2,1;BorderStyle, MainPen, Extra Pen

Highlight COMPLEMENT

ButtonFlags NONE

EndScript

OnRelease

Quit

EndScript

EndObject

List "ListDoc"

Definition

Origin 4,14

Size 628,87

Font "topaz",8 ; FontName, PointSize

PrintStyle PLAIN ,2,3 ; Style, Pen1, Pen2

TextColors 1,0,JAM2 ; PenA, PenB, DrawMode

Border DOUBLEBEVEL ,2,1 ; BorderStyle, MainPen, ExtraPen

Document "List" ; where the text comes from

EndScript

OnRelease

WorkWithDocument "List"

Let L = TheLineNumber

If TheLine = ""

ExitScript

EndIf

WorkWithDocument "Help"

Clear DOCUMENT

Type Help[L].txt,NEWLINE

MoveCursorTo STARTOF DOCUMENT

EndScript

EndObject

Memo "HelpDoc"

Definition

Origin 8,108

Size 624,120

Font "topaz",8 ; FontName, PointSize

PrintStyle PLAIN ,2,3 ; Style, Pen1, Pen2

TextColors 1,0,JAM2 ; PenA, PenB, DrawMode

Border DOUBLEBEVEL ,2,1 ; BorderStyle, MainPen, ExtraPen

Document "Help" ; where the text comes from

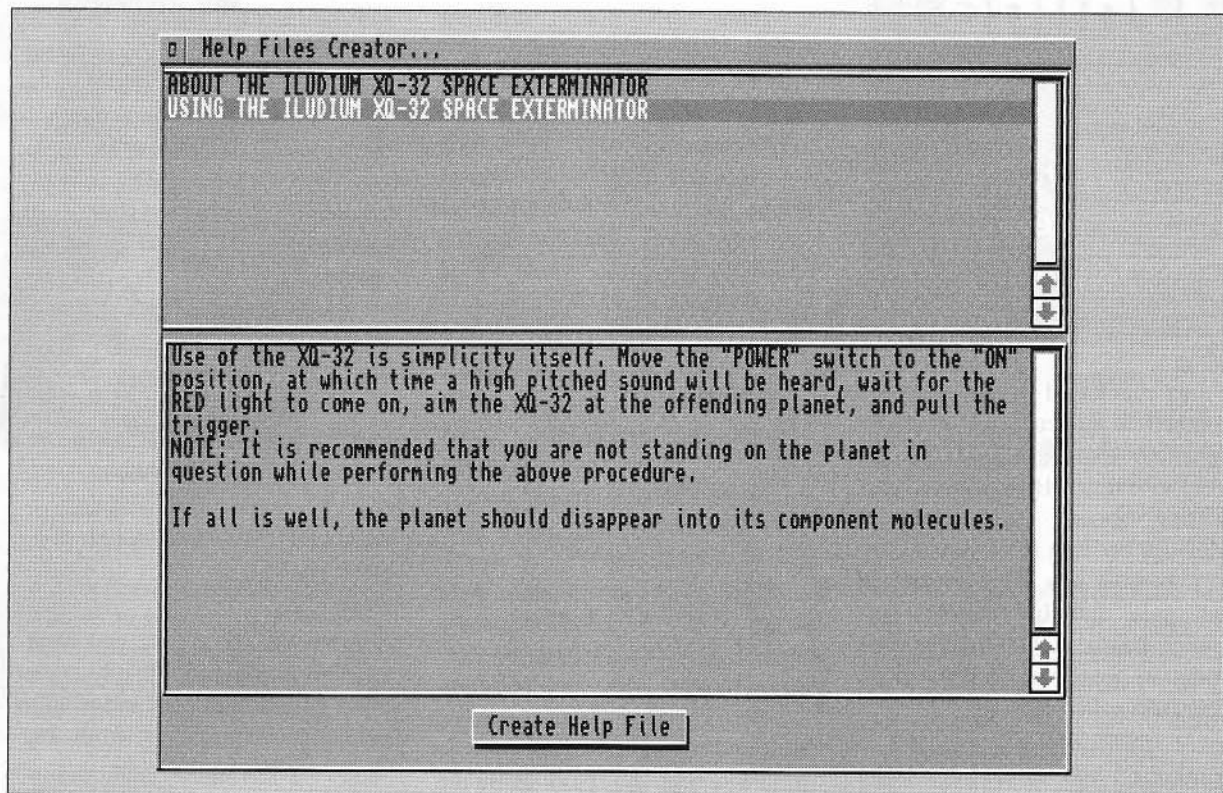
ScrollBars RIGHT

InputStyle NOTYPING

EndScript

EndObject

End of Card "DisplayHelp"



Explanation

When this deck loads it will look for a file called "help.dat" in the origin directory, load it and display the topics available in the help file.

Clicking on any topic will display the information for that topic in the bottom document.

Creating the help file

The following text is an example of a help file I created. Note that I have used the "@" character to denote a help file topic.

This enables the creator to determine how many topics are in the file. You can use this text to test your decks or make your own.

Sample Help Text File

@ABOUT THE ILUDIUM XQ-32 SPACE EXTERMINATOR

The XQ-32 has been designed to exacting standards by the Warner

Ray Gun Manufacturing Company. The XQ-32 will give any budding megalomaniac the edge when attempting to conquer an uncooperative planet.

@USING THE ILUDIUM XQ-32 SPACE EXTERMINATOR

Use of the XQ-32 is simplicity itself. Move the "POWER" switch to the "ON" position, at which time a high pitched sound will be heard, wait for the RED light to come on, aim the XQ-32 at the offending planet, and pull the trigger.

NOTE: It is recommended that you are not standing on the planet in question while performing the above procedure.

If all is well, the planet should disappear into its component molecules.

End Sample Text File

Incorporating help files

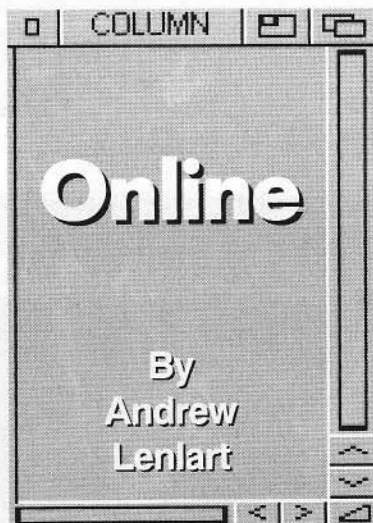
Use the HELP FILE DISPLAYER in a sub-deck and call it from your main program. Make sure the "help.dat" file is in the same directory as your main program.

Have fun! See you next month.



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column, now get all
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► Just purchased or about to get yourself a modem? All ready to download some great free software from all these BBS's you've been hearing about? Then read on, McDuff, because the following info may save you some frustration and quite possibly prevent premature baldness. One of the most common questions I receive from new BBS callers is:

"I managed to download a game from your BBS, but when I try to play it, my Amiga tells me that the game DGALAGA.LZH is an Unknown Command! What am I doing wrong? Please help!"

Many new modem owners have problems coming to grips with what an archived file is and how to go about getting into it. Here's a quick explanation.

What's an archive?

Files stored on most BBS systems are archived. If they weren't, then instead of just having to download one file to grab that game or utility you want, you would be faced with downloading several larger files which would take considerably longer to do. An archive is basically a group of files which have been compressed by special software and then turned into a single file for ease of transfer via modem. It's not necessary for you to understand how they do their stuff, but it is imperative for you to understand how to use them.

There are many different archivers being used today, but the most popular one would have to be LhA by Stefan Boberg. Others you might encounter from time to time are DMS, ARC, ZOO, LZH and so on, but these are nowhere near as frequent. DMS actually has the ability to compress whole disks, bootblocks and all, but more on that in a moment.

It's easy to recognise which archiver has been used on a file because the three letter suffix gives it away. For example, FileName.Lzh is either an Lharc or LhA file (LhA can make and extract .lzh and .lha type archives).

How do you do it? Here is an example of how to uncompress a file called "DGALAGA.LZH" using the LhA archiver. First of all, be sure to have a copy of LhA, either in your C directory or somewhere in your path. Copy the archive DGALAGA.LZH to an empty directory of your choice on your hard drive. Once done, fire up a CLI or Shell and change to that directory. Then simply type:

```
lha x dgalaga.lzh
```

and hit return. LhA will extract all the files contained in the DGALAGA archive for you and they will be ready to use. You should now find a whole heap of new files in your directory, which were what made up the DGALAGA.Lzh archive. You can now delete the archive.

All of the other archivers available work on much the same principle, but to get the most out of them, take the time to read through their doc files. If you're one of those people (like me) that only reads doc files as a last resort, then simply type the archiver name in a shell with a space and question mark on the end and you'll find that most will give you a short help screen along with their command template.

Advanced archiving

Once you get used to using archivers like LhA, you'll soon be able to take advantage their numerous options. For example, you can unarc files to any destination you like, simply by specifying the path when extracting.

So if you had DGALAGA.-LZH on a floppy disk in DF0: and you wanted to extract it to your Games directory on your DH1: partition, then all that would be required is the following..

```
LhA x DF0:DGALAGA.Lzh  
DH1:MyGames/
```

or whatever other path you wanted. This is especially handy if you don't have a hard disk and want to extract your archives from one floppy disk to another.

How do I unarc an archiver?

Another question many ask is how in the world do you get an "unarc'd" archiver, ready to use, when the files on bulletin boards are nearly always archived. All that's required is to download a "Self Extracting" archive of the archiver which you need. Self extracting archives usually end with RUN.

For example, if you don't have a copy of LhA as yet, then make this the first thing that you ever download from a BBS. Look for a filename similar to LHA_-138E.RUN. All you need to do is run the archive like a program from the shell and it will automatically unarc for you.

Once you have a copy of LhA in your C directory, you should be able to decompress other archivers, which are often archived with LhA or Lharc anyway.

DMS confusion

As I mentioned earlier on, Disk Masher (DMS) has the ability to compress whole disks. It maintains directory structure, tracks which blocks are free and full and reproduces them exactly AND has the advantage of including the bootblock.

Now despite what seasoned modem users consider to be the simplicity of DMS's use, many new modem owners that manage to come to grips with archivers such as LhA still get confused when faced with the problem of unmashing a DMS archive, probably due to the many options which DMS's help screen gives.

Here is the simplest command line to unmash a DMS archive.

Firstly, place the archive either on your hard disk somewhere, in DF1:, or in RAM if you've got enough of it. Naturally, I'm assuming you have DMS somewhere in your system's path. Put an empty disk, (which doesn't need to be formatted) in DF0:, and CD to the directory where your DMS archive is. Now type:

DMS WRITE <NAME>.DMS
and hit return. DMS will automatically default to drive DF0: and will prompt you for a blank disk. Once you hit return again, it'll go off and do its stuff. Simple.

Virus warning

A tip for new players - don't assume any file you download

from a BBS will be virus free, no matter how big, reputable or popular the BBS. Just because a BBS says all archives have been checked doesn't necessarily mean that they are clean.

Grab an up to date virus checking utility and check the contents of ALL archives you download. Despite the efforts of many conscientious system operators around the globe, it's a well known fact that BBS's are one of the most common ways to pick up a nasty surprise.

Contact Andrew Leniart via net-mail, or a simple online note, at his BBS, Andy's Attic, at 3:633/106 @fidonet or 41:300/- 106 @AmigaNet, (03) 749 4897.



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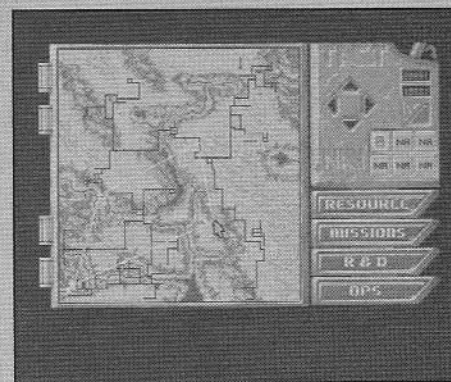
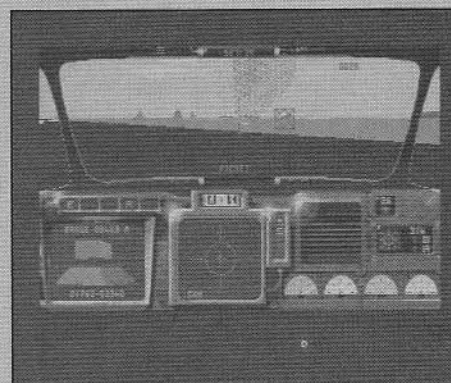
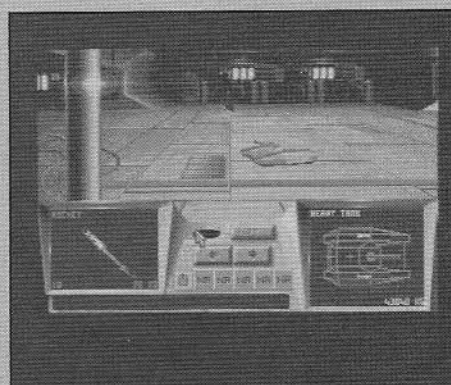
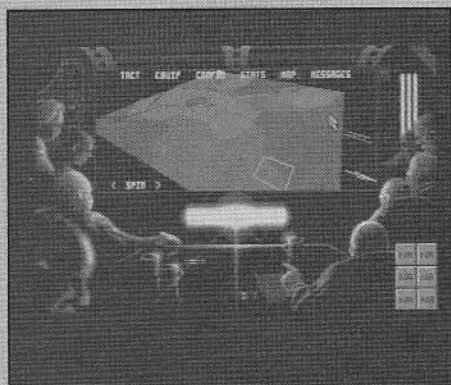
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Carrier Command was the first of the big vector graphic action strategy games. Armour Geddon got a fair few fans for its poke at the genre, and now there's Code-name Hellfire - Armour Geddon II. There's the inevitable storyline, but I've made a resolution to talk about those as little as possible.

You're the good guys. As the good guys, it's your duty to prevent the destruction of the human race (Computer Game Stock Motivation Number 1) by building a probe rocket to zap up to that nasty old Hellfire satellite that wasn't quite destroyed in Armour Geddon 1 and thwack it good and proper. If you're too slow, the bad guys press the big red button and the cockroaches get a go at the planet.

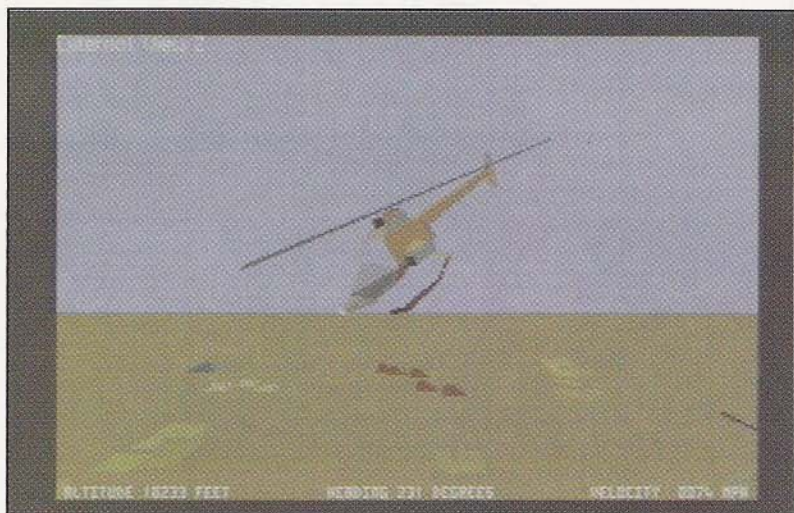
In order to build the probe, you need resources, which have to be trucked to the launch site. Building materials come from mines. Vehicles, including trucks, come from factories, which are also supplied by mines. It'd all be rather simple if it wasn't for those pesky guys in the black hats.

They own a lot of the mines and factories - or they do by the time you get there, anyway. You can get them back by parking a vehicle out the front, which magically captures the facility and

its defensive installations. If you leave all the defenses there, though, you tend to get whipped before you make it to the gate.

Since they're there, you have to use the other varieties of vehicle. Big and little tanks for lugging lots of ordinance, hovercraft with much smaller payloads but superior speed and range, Missile Defence Platforms for easy toting of lots of missiles, bombers for, well, bombing, and also dropping other stuff; fighters and choppers for subduing enemy air activity and also an airship, which I'm not entirely sure what it's for, since it's not too fast, doesn't carry very much, doesn't go very far and might as well have a bullseye painted on it.

The tanks have guns you can change the elevation of, but there's no turret to turn. The action happens on a map which is quite large but not unmanageably so. The map screen scores high in the sexiness stakes - the map's a vector object (they've got a fast vector engine, they feel compelled to use it everywhere), and you zoom in with the left button and out with the right. With the map in its default slow rotation mode, this looks very slick indeed. Unfortunately, the map isn't actually as nice as it looks, since there are



only two magnification levels and you can't rotate it quickly, only with the two little arrows on either side of the spin toggling button.

Fortunately, there's another map on the tactics screen, where you plan missions. You can set waypoints for your vehicles, which their autopilots can take them to without you having to babysit them.

The tactics screen is also how you get to Research and Development, which you need to develop nicer hardware. You can assign different numbers of scientists to researching different gadgets.

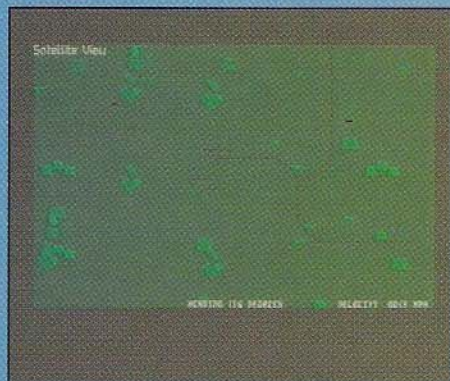
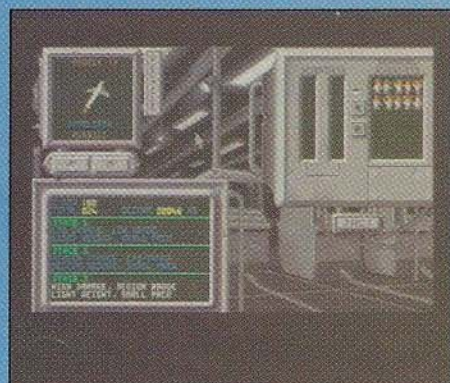
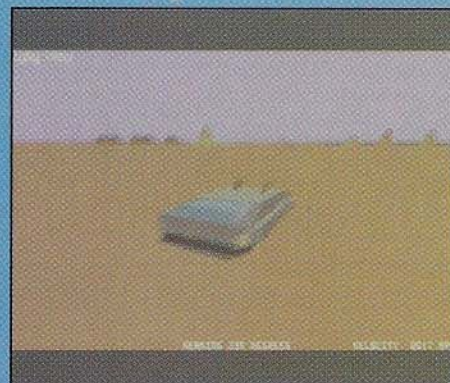
Out in the field, you spend a lot of time in the cockpit. As a combat simulator, Hellfire is average. The vector graphics are fast (owners of slow machines can reduce the detail), and it's easy enough to hit things - good proximity fuses on these future weapons - but there just isn't much gritty detail. This is OK; stylised combat is fine when you're trying to orchestrate the whole battle.

There are plenty of nice views from and of your vehicles; you're not stuck staring out the front window. There's also time acceleration up to eight times, so you don't die of boredom waiting to reach your destination.

Weapon switching can be annoying, especially in the heat of battle. You have to hit W, to cycle through weapons on one of your displays, then hit S to select the one you want when it's highlighted. At least there are plenty of weapons. Missiles and rockets both come in two sizes, there are two flavours of bomb, lasers, cloaking devices so you don't show up on radar, and other, non-weapon ordnance as well.

Fuel tanks can be dropped and used by other craft for a quick top up. Recycle pods let you teleport 80% of the resources used to build a destroyed vehicle back to the nearest base for reuse. You can also leave teleport pods around the place for fast access to a given area (bombers can drop them near the bad guys, for example, so you can pop an assault force out of nowhere and pull them out later just as easily).

In the leaving the best for last department, you can also use a datalink and play against a friend. BIG selling point. Hellfire's manual's not great; at the outset you'll be fishing a bit. Buzz around, get shot a lot and get the hang of things. Once you're into it, it's excellent. Carrier Command fans will be rapt.



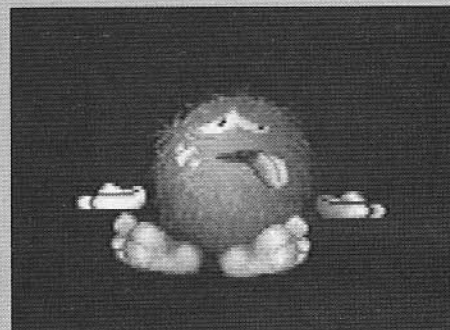
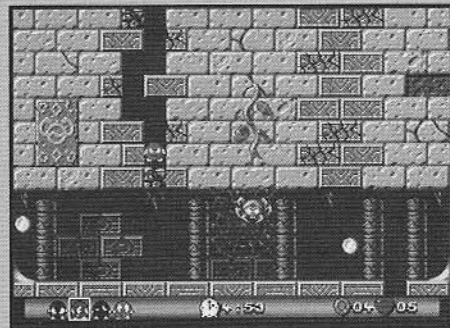
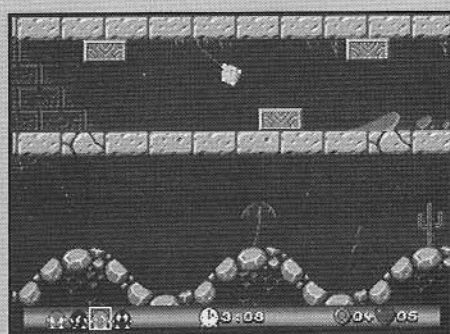
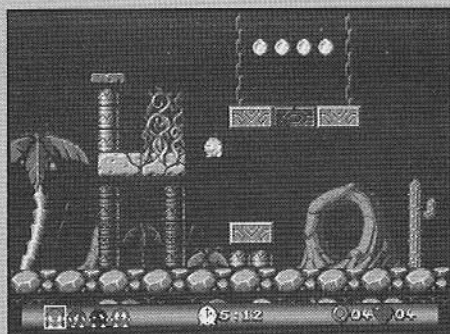
Armour Geddon II

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Cute platform heroes are something of a cliché, but Fury of the Furries features what could be the essence of the species - the "Tiny" you play is round, fuzzy and has little hands and feet sticking out in appropriate places, and an amusingly expressive face. You have to guide him or her around assorted convoluted platform puzzles as part of the usual quest to save blah evil plans blah imprisoned king blah.

Fury's Unique Selling Point is that you can transform at any time into four different flavours of small round fuzzy thing. The yellow one is immune to fire and can spit fireballs - the longer you hold the button down, the beefier the fireball is.

The blue one can dive underwater (the other ones can only swim on the surface) and can blow a stream of bubbles to hurt bad guys or slightly raise the water level. The red fuzzball can eat some rocks. And the green one, by far the coolest, can pop out Spiderman-style swing lines and lob around like Tarzan, which is hugely amusing.

The graphics aren't mindblowing, but they're clear and pretty, with lots of nice touches like the green guy's uncertain expression while falling and cheerful smirk

once he snags a line. The blue fellow's bubbles zip out in a straight line for a little while, then float to the surface most appealingly. The intro animation's not great, but that doesn't matter.

The sound's appropriately silly. The music's quite annoying, and you can't turn it off - although you can turn off the sound effects.

The only really annoying thing about the game is the control system. Everything's rather squishy, as you might expect when controlling diminutive hirsute spherical critters, but it wouldn't have killed them to make it a bit snappier.

My pet hate in all platform-puzzle games is when you can see exactly what you have to do to pass a puzzle, but can't actually manage to do it, thanks to a bodgy control system. This doesn't happen all the time in Fury, but it happens often enough that casual gamers will get frustrated.

If it weren't for the little green guy, this'd be a dud game. But he's there, so it's worth playing. If you're into platform puzzles and don't mind an, ah, challenging control system, you'll love Fury.

For more information,
contact Hotpoint on:
(02) 634 6499.

□

BRIAN the LION

Well whaddaya know. A cute platform hero. Got a few of 'em this month. Brian's a decent sized chap, wears a pair of natty shorts, and deals with bad guys by thwacking them with a paw or (shock! horror!) jumping on their heads. I feel short-changed by any game that doesn't give me a gun, but at least I get to be king of the jungle, right?

Well, no. As always, there are lots of bad guys led by a super bad guy and they're out there doing bad things and it's your job to stop them. To that end you run, leap and thwack around many beautifully drawn and bonus-laden levels. There are gems lying around all over the place, with which you can buy goodies in the occasional Cloud Shops.

Here you buy extra hit points, extra lives or whole continue-games (of which you start with none), as well as boosters for your special abilities. There are three of these, all of which start off deactivated; there's a roar to stun your enemies, a super jump and extra speed, all of which are essential in the later levels.

To be frank, this is the kind of platform game we've been waiting for from Psygnosis. In the olden days they used to be famous for

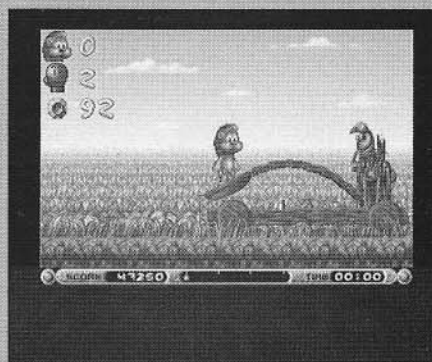
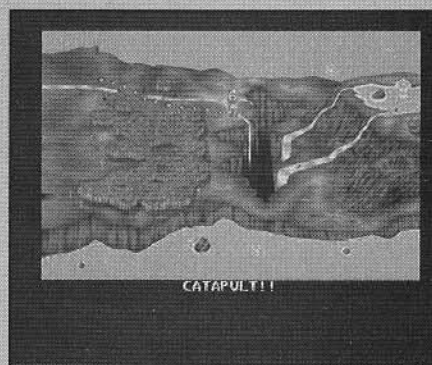
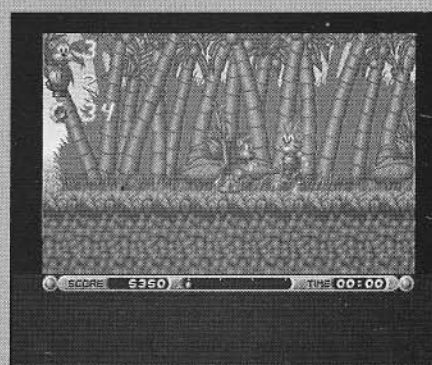
producing graphically gorgeous and quite interesting platformers that played like molasses, then the Shadow of the Beast series was fast and pretty but tedious; now they're pumping out tons of stuff by all sorts of authors that varies in quality from excellent to dire. Brian the Lion is in the former category.

Control is quick and direct; there's little "squish" and no single-pixel error margins. For example, Brian does a little slide when he stops form a run, but if that slide would take him over an edge he'll stop sooner. This greatly reduces the D'oh Factor.

The graphics are lovely, with a few consoleish pixelisation and rotation features and loads of Amiga parallax scrolling. The sound effects aren't inspired but they're not too annoying; the music is excellent.

Overall, if you like platform games at all you'll enjoy Brian. It's very well put together, pretty and playable.

Contact Hotpoint on (02) 634 6499 for more information.





► You are the extremely implausibly named Ben E. Factor. You're about a centimeter tall.

There's a storyline about you, but it's got nothing much to do with anything. The aim of the game is to leap and clamber around platforms, ladders and overhead bars, in order to liberate weeny little captive dudes from their prisons.

Some of the weeny dudes have turned evil and grey in the course of their imprisonment, and must be fed into a recolouring machine to make them nice again.

Naturally, that's not where it stops. There are tons and tons of ways to die. Many of them are associated with nasty little critters; some are old favourites like enormous drops and pools of water (that's right - in a fabulously original development, you play a mightily thewed intergalactic hero who can't swim).

Every level's a puzzle, where you have to decide what to pick up when, how to get around the deathtraps and which switches to flick (hint - all of 'em).

The best thing about Benefactor is the presentation. The graphics are simply gorgeous; watching yourself run, jump and climb and the various bad guys lumber and slurp their way around is most

enjoyable, particularly since there's no time limit and you can spectate for as long as you like.

The sound effects are pretty good, too, although the music grates a bit. The down side? Benefactor's just not particularly original, and it's also too fussy.

Platform puzzles abound, from the stylish action adventure style of Flashback to the pure puzzles of Lemmings, and Benefactor's right in the middle without much to recommend it.

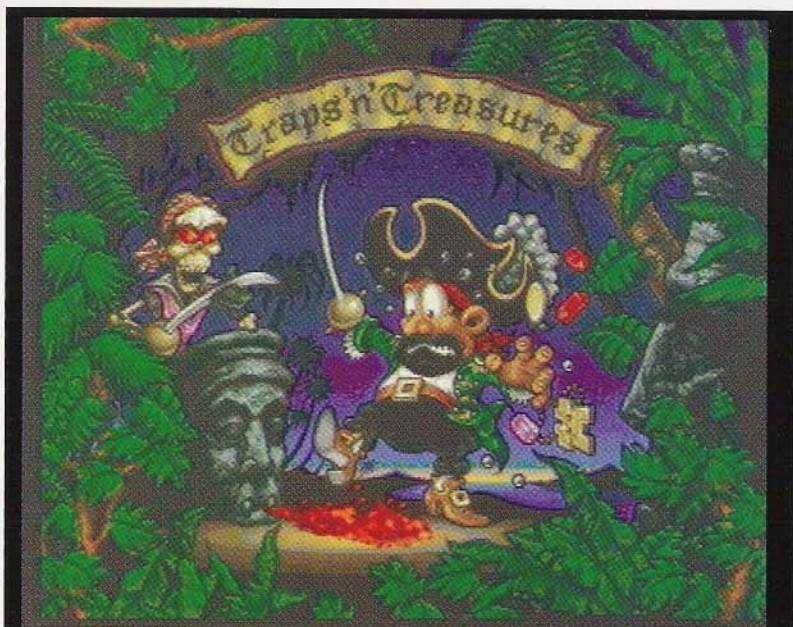
The fussiness is Benefactor's most annoying trait. There are lots of places where the tolerance for error is a pixel or two; if you don't happen to have the Flash's reflexes you lose.

And in some places you even have to take damage in order to complete a level, which is in my books a sign of sloppy design.

If you're a platform puzzle fanatic, check Benefactor out. It's certainly gorgeous, and the manual's quite funny, if that counts for anything. It's not a loathsome game; if you're tenacious you could derive considerable amusement from it. But against the older competition, it's very average.

**Contact Hotpoint on
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► You're Flynn, a pirate, you're shipwrecked, you're rescuing your comrades. So much for the story-line - what about the game?

As a blatant Ghosts 'n' Goblins descendant, Traps 'n' Treasures holds its end up very well. Traps' similarity to Ghosts extends to the gameplay.

As in all the best arcade platformers, you get a little further every time, and the programmers have intelligently decided that you don't need a time limit on a machine that isn't coin operated. You can take as long as you like, and try as often as you like, to do any bit of the game.

Traps uses one button joystick control, but you still get to do a fair bit with Flynn. Moving and jumping work as you'd expect, and you've got a handy little sword to whack the baddies with. You can pick up beefier weapons as the game proceeds.

If you press the button while jumping, Flynn bounces around on his bum, which looks rather undignified but lets him break sandstone blocks (hey, he hasn't washed the old Y-fronts for a while, OK?). If you waggle the joystick vertically while you're in the air, Flynn pops open the pirate flag and parachutes, which stops

you dying when you fall too far. You can also pick up and move boxes, mainly so you can jump off them and get to otherwise inaccessible places.

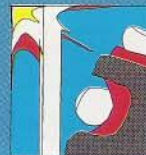
Traps' collision detection is a bit on the ferocious side. Bullets and bad guys whom you could have sworn would miss you by a whole pixel, zap you instead. It's consistent, though; you don't occasionally get away with things that kill you the rest of the time.

The baddies are in the great tradition of platform game adversaries; they all behave according to certain rules, and once you've sussed the rules for a given monster, you've got 'em.

The game is also stocked with cash, which lets you buy things in shops. The shops get progressively more useful as you get further, letting you buy funky new weapons and extra health.

In summary, Traps 'n' Treasures offers just about nothing in the Stunning Innovation department. But who cares. It's a large, playable, entertaining game that'll keep you cursing at the screen for ages.

For more information, Contact Hotpoint on (02) 634 6499.



Deluxe Paint V Gossip

► The next version of Deluxe Paint, the ubiquitous and magnificent 2D paint and animation package, will have some interesting new features, although it will look much the same - but maybe with proper file requesters (what a concept).

There will be genuine non-rectangular brushes - so you can not only clip odd

shapes but keep them afterwards. An ARexx port and macros will satisfy the integration freaks, and born artists will like the new "natural pens", a load of drawing tools that look like the real thing - chalk, paint and so on.

No word on a release date yet, though.

□

Supercheap Maestro modems

► Australian communications company Maestro have reduced the prices on their modems, bringing the high speed 28,800 baud models well and truly down out of the stratosphere.

You can now own the cutting edge of modem technology for a lousy \$599; the older 14,400 technology is now \$399. Both of these, in

the Amiga incarnation, include GPFax.

This is a downright startling price drop, considering the original 28,800 prices that soared well above \$1000. 28,800 modems still aren't particularly common, but with prices like this that'll change.

□

EGS Software Updated

► GVP's software for their EGS Spectrum card has been updated to v6.2. There are several new features.

The E.S.P. program lets you mode-promote system compliant programs to EGS screen mode, for much faster graphics. Spectra-Paint 1.2 now comes as standard. There's also an EGS software driver for Real 3D.

Power users will be thrilled to know there's now and EGS Boulderdash game too, and a new file utility for EGS screens called EGS-

DOS. The software also doesn't modify the startup-sequence any more, among other bug fixes.

To get the update, Spectrum owners need just send in their 5 original disks and an \$8 cheque or money order to Peripheral World, 506 Dorset Road, Croydon 3136.

Contact Peripheral World on (03) 725 3233 for more information.

□

Pegger v2.0

► Heifner Communications has released version 2 of the Pegger image compression system. It's an automatic JPEG-ing system that compresses images quickly on the fly, with minimal memory usage.

Pegger now includes a new Snoop mode which lets you specify the compression and decompression mode on a program-by-program basis, so different programs can read compressed images from the same directory using different file formats.

Pegger 2 is said to be

twice as fast as the original. It supports several new file formats - RGB8, 8bit colour and grey IFF, JPEG grey-scale, TARGA colour and grey and Toaster CG Frame-store Pages. It also now works with networks, has more configuration options, and plenty of fixed bugs.

In the US, Pegger 2 retails for \$US99.95, with an introductory price of \$US49.95. Australian pricing is not yet set.

For more information contact CPA on (02) 337 6255.

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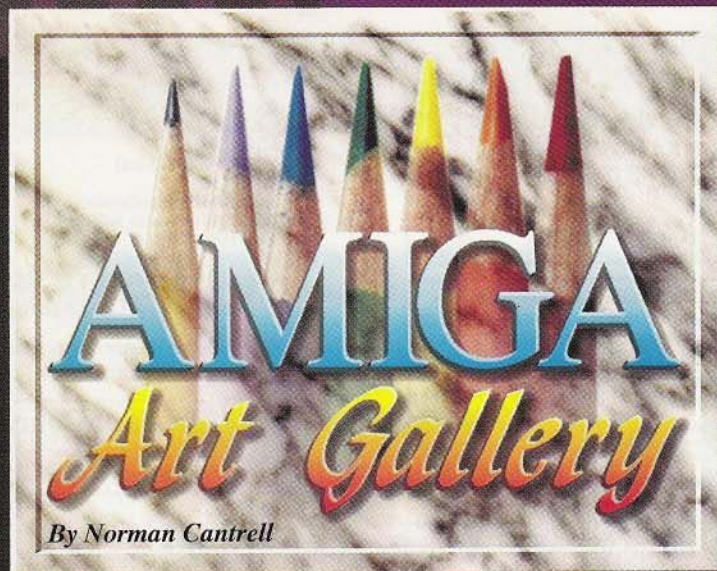
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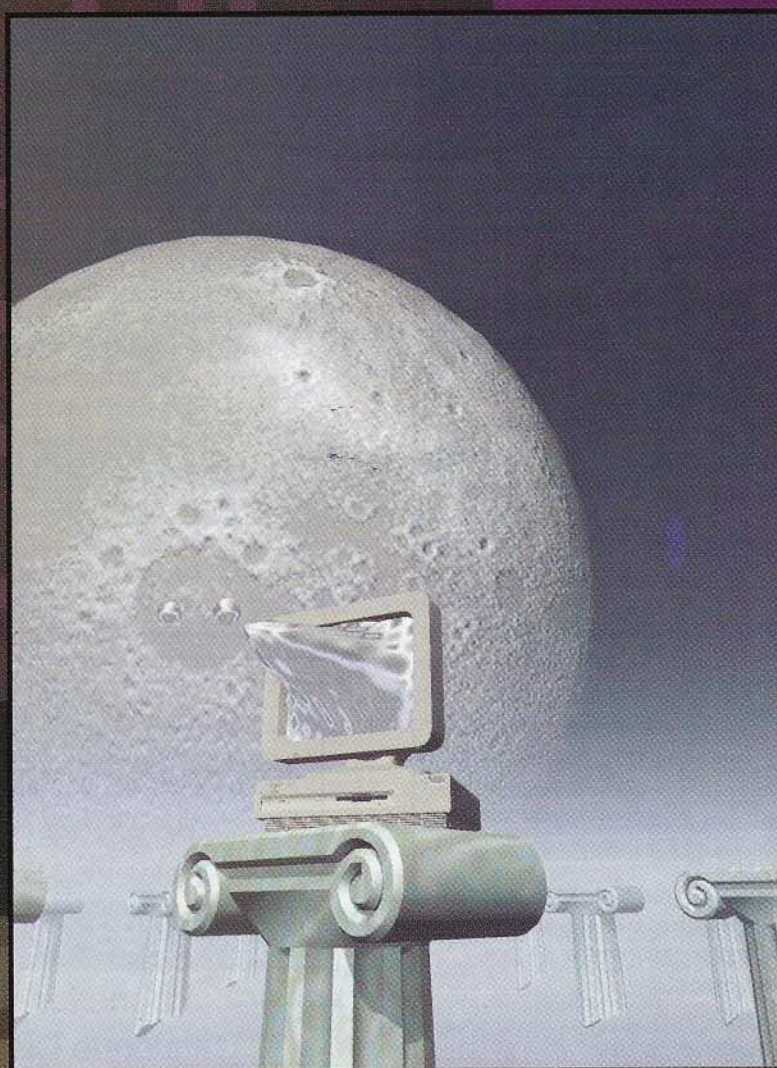
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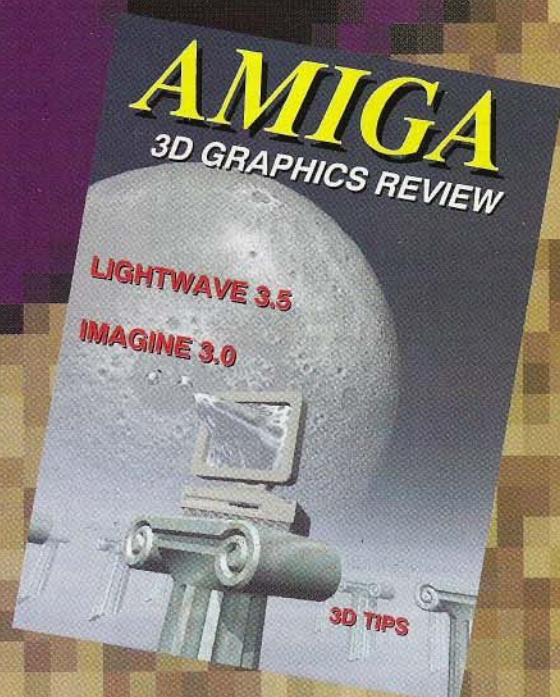


Welcome to the Amiga Art Gallery. This month sees the release of Light Wave for us in PAL land. This powerful 3D rendering package has created special FX for the current TV show Sea Quest DSV and many more. We look forward to seeing some Australian Light Waving soon. So if you have some graphic art to contribute, why not shoot us a disk - or modem the file to our simple BBS on (02) 816 4714.

Please include your name, tel no and how you created the image, in a text file.



736 x 1040, 24bit, Created with Imagine 2.
By Leigh Malpas.



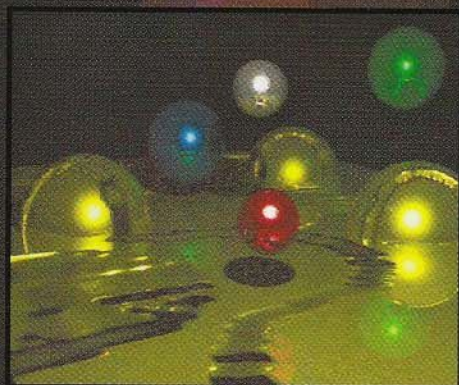
Leigh sent this picture in and suggest it may have made a good cover pic. What do you think?



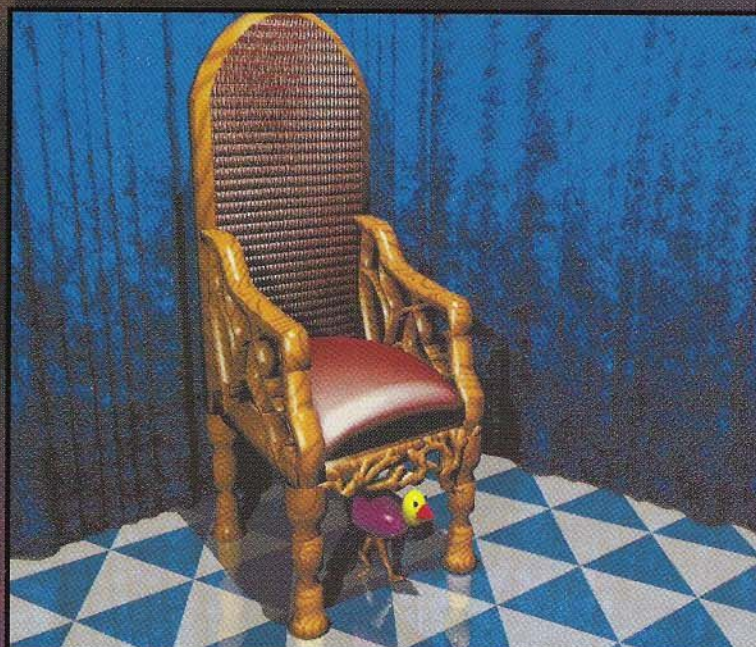
704 x 582, 24bit, Created with Imagine 3.
By W.J.Porter.



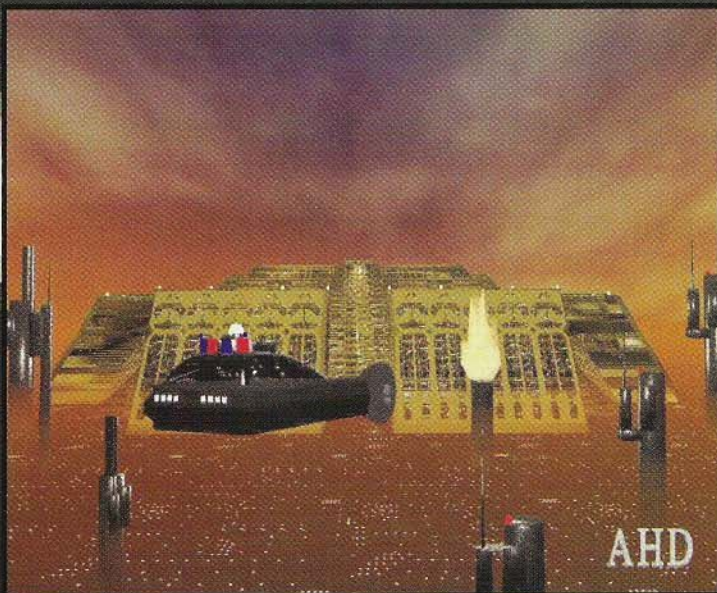
320 x 512, HAM, Created with Real3D 1.4
By T.J.Brand.



320 x 512, HAM, Created with Real3D 1.4
By T.J.Brand.



640 x 512, 24bit, Created with Imagine 2.0
By Colin Baggarley.



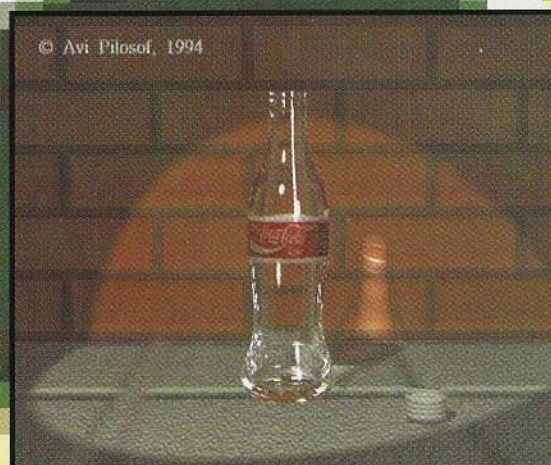
768 x 482, 24bit, Raytraced By A.H.Denton.



736 x 580, 24bit, Created with Imagine 3.0
By Leigh Malpas. Amiga-developers take note!



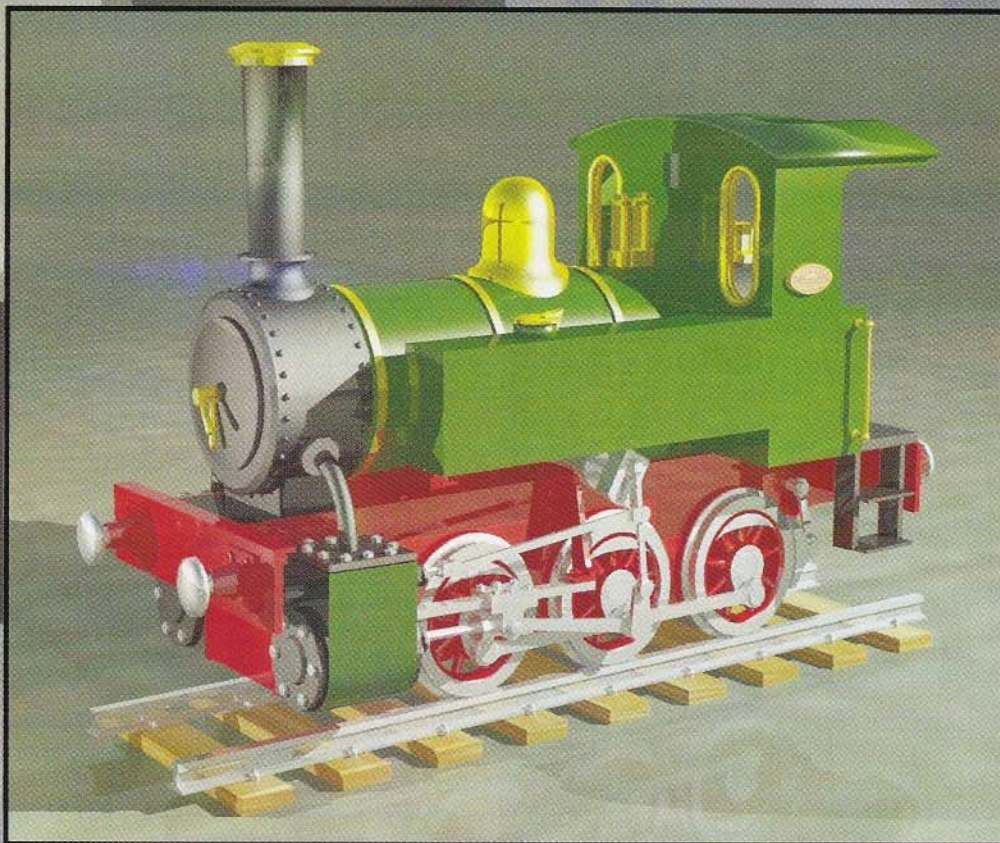
736 x 566, 24bit, Created with Imagine 2.0
By Colin Baggarley.



704 x 566, 24bit, Created with Real 3D V2
By Avi Pilosof.



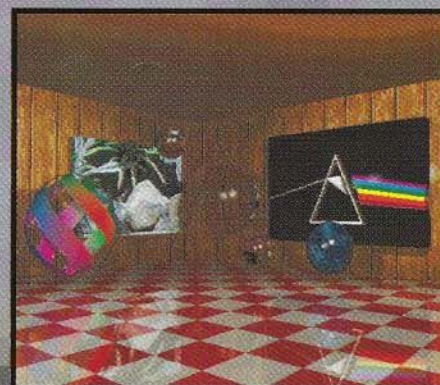
736 x 580, 24bit, Created with Imagine 3.
By Leigh Malpas.



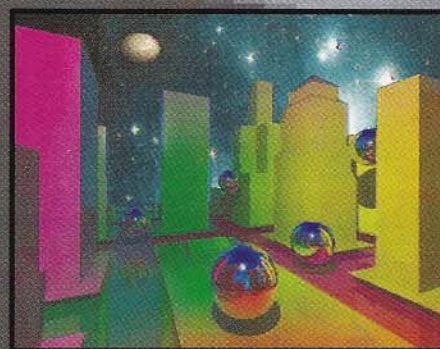
1408 x 1160, 24bit, Created with Imagine 2.
By Dave & Leigh Malpas.



640 x 512, 24bit, Created with Imagine 2.
By Colin Baggarley.



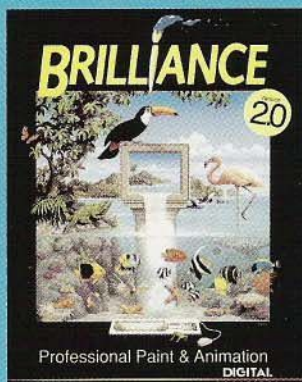
320 x 512, HAM, Created with Imagine 1.
By T.J.Brand.



320 x 512, HAM, Created with Imagine 1.
By T.J.Brand.

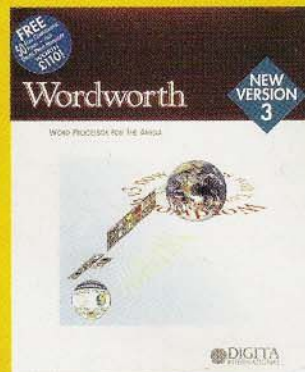
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Virtual Reality Labs







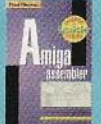



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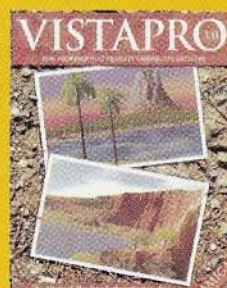
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What's New at the Review

This month's Amiga issue - we promise that be Review went on sale in November we will be well newsagents around the country on the 14th of the month. Next month we're aiming to be out on the 7th. As some of you know, the magazine changed hands as of the July issue. Unfortunately, this did not happen until late June, making it impossible to get July out on time - and we've been catching up ever since. Thank you for patiently waiting for each

Subscriber copies are now sent about one week prior to the on sale date at newsagents. However, delays with Australia Post and our subscription fulfilment company have meant a few teething problems here. We're working on this, and hope that this month's copy reached even more subscribers before the

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For Reader Classifieds see pages 38, 40.

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Contributors WANTED

Now that Amiga Review is bigger, we're looking for writers. Even if you've written for other Amiga magazines, we promise to give you a chance!

Plain English explanations, in an entertaining style, offering intelligent information on getting more out of the Amiga are preferred. Any wordprocessor format is acceptable, although straight ASCII is preferred. IFF images should include captions in a separate text file (or on the end of the main text file).

You can forward your contributions on disk or modem them to us by calling (02) 879 7455 first and then, once okayed, ringing back on our modem line on (02) 816 4714. Alternately, send them to The Editor, Amiga Review, PO Box 288, Gladesville 2111.

We do pay for contributions, starting from \$50 per 1,000 words up to \$150 for really good stuff. Please don't send your original disk, as we cannot guarantee safe return.

o o o

NEXT MONTH:

- More on colour printers
- Clarissa and Adorage reviewed
- TV Paint 2.0 Professional
- Money Matters
- Retina Z3

Neptun-Genlock

Electronic-Design



Titel & Graphics



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